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PRACTICAL TREATISE

ON

DISEASE IN CHILDREN

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Sir Andrew Clark, Bart., M.D.,

IN TOKEN OF SINCERE FRIENDSHIP

BY THE AUTHOR.

PREFACE.

Ir was not without hesitation that the author consented to the proposal made to him by Mesers. Wood & Company, of New York, that he should write for them a complete Treatise on the Diseases of Infancy and Childhood. The length of time which would be required for the completion of a task so considerable, and, especially, the knowledge that many manuals of varying merit were already in the field, indisposed him to attempt a work which must necessarily prove not only long but laborious. Encouraged, however, by the reflection that his opportunities for studying these complaints had been abundant; that is the course of more than twenty years be had acquired a mass of valuable material, and that of existing books few dealt with more than a part of the subject, he thought himself justified in believing that a treatise which undertook to discuss the whole subject of discuse in early life, and to deal with the matter purely from a clinical stand-point, might not be without its uses.

The constitutional peculiarities of childhood, and the weakness due to immaturity, so shape the course and symptoms of disease that there are few complaints which do not assume special features when present in the young. Consequently the author has not hesitated to admir into his pages descriptions of every form of illness which is capable of being influenced in its manifestations by the early age of the patient. Those only have been purposely emitted which, like diabetes, present exactly the same characters in the child that they do in the silult.

Each subject los been treated as fully as the space would allow, but many faults of emission may, no doubt, be discovered. The author, however, has striven to satisfy all clinical requirements, and where much must be left out, that the book may be kept within reasonable limits, has been anxious to omit nothing of real value to the practitioner.

In the composition of the work the use of statistics has been generally avoided, for unless dealing with enormous numbers little that is trustworthy can be obtained from this method of inquiry. In fact, there can be little doubt that very erroneous impressions have been sometimes derived from statistical exiculation based upon an insufficient number of cases.

In order to increase the usefulness of the book, much care has been bestowed upon the sections relating to disgnosis and treatment. No attempt, however, has been made to include in the directions for treatment an enumeration of all the remedies which have been suggested for the cure of the several forms of illness. Such excess of detail not only fills the page with information often of doubtful value, but tends rather to confuse the reader than to instruct him. Moreover, it gives to this branch of therapeuties an importance which, in the case of children, it does not always possess. In the case of a young patient, judgment in feeding and care in smitary arrangements not seldom constitute the sole necessary treatment of the illness. Quiet, rest, appropriate. food, and plenty of fresh air will often restore the health without the aid of physic; or if physic seem called for, the remedies needed are simple and few. But whatever he the nature of the mulady, and houever elaborate may be the medication required, the details of muring should always take precedence of those of drug-giving. Keeping this truth in view, the author has been careful to give due preminence to the subjects of diet and logicue; and in the matter of drugs has confined himself, for the most part, to recommending those only which experience has taught him to value, and upon which, therefore, he has himself been arrustomed to rely,

For purposes of illustration a number of concisely narrated cases have been introduced into the text. Most of these have been selected from the author's case-books, lest a few are taken from the practice of his hospital colleagues. To these colleagues, for their kindness in placing their cases at his disposal, the author desires to express his deep obligations.

GROBER STREET, HANNYER SQUARE, June, 1884.

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DISEASE IN CHILDREN.

INTRODUCTORY CHAPTER.

Tex difficulties connected with the investigation of disease as it occurs in early life may be easily enggented. The subject is no doubt a special one; but when the first strangeness has been overcome of dealing with patients who cannot describe their scuentions, and who show their distress by eries and gestures which it requires experience to be able to interpret, the chief obstacle to progress has been surmounted. All necessary informetion as to the enset and early symptoms of the complaint can negally be obtained from the mother. Most women are good observers. Affection and anxiety increase their watchfulness, and make them fairly accurate recorders of every outward change. The stress had by them upon particular phenomena is not, indeed, always a true measure of the real importance of the symptoms; but it is easy to correct my under surpluses in the narrative by our own judgment and experience. Still, we must grand correction from being misked by the very falness of the report; facts may be accepted with confidence, but solunteered explanation of these facts must on no account be allowed to influence our concitmons.

When called to a sick child our first care should be to give an attentive hearing to the statement of the mother, supplying any gaps in the history by antiable questions. Having thus been enlightened as to the previous health of the child and the nature of the surfacet symptoms, we have next to collect what information we can from the appearance and numer of the patient. To do this with success we must possess already a cortain familiarity with the ways of infants and young children; but this is anothy acquired with a little practice. Again, we have so to regulate our own burning as not to alarm the child, who is already perhaps in a state of disquiet. It has been soil that a natural fourlasses for children is indisposable to access in this branch of medicine; but this is an engageration. A quiet, point meaner with a pleasant smile and a gentle wice will soon discipute the appearance with a pleasant smile and a gentle wice will soon discipute the appearance of the patient and gain his confidence. Leady, we preceded to a physical commination of the various organs. This, if does differently and without abruptness or larry, can be effected in most cases

The main difficulty in the diagnosis of discuse in early life arcses, not from the absence of intelligent speech on the part of the patient, nor from any uncertainty in the recognition of risible signs of suffering. It springs from the perplexity we often feel in referring these symptoms to these true origin. Children are not merely little usen and women in whose bodies

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without much trouble.

discree manifests itself by exactly the some tokens that are familiar to us in the case of the adult. They have special constitutional peculiarities which give to disease in early life a character it does not afterwards retain, and invest the commonent forms of illness with strange features which may be a source of obsessity and confusion. The most striking pseudiarity of childhood is a marked excitability of the nervous system - in excees of sensitiveness which any deviation from the healthy state brangs at some into prominence. Consequently, a functional demograment which in the adult would give rise merely to slight local symptoms, in the child may be accompanied by signs of severe general distress; and the indications of local suffering may be thus overslastowed or completely conomied. A common example of this nervous excitability is seen in the disturbance which often results from smallowing some indigestible article of food. The skin becomes burning hot, the child is in a state of extreme agitation is perhaps convalsed, or lies in a state of stapor from which he can with difhoulty be record. In such a case the state of the storock is upt to be seerlooked; for even if the child comit, which does not always happen, the symptom may pass almost unroticed as one of the consequences of the general nervous perturbation. General symptons of a like character may accompany the onset of any armie illness, and their soccity bears no relation to the importance of the milment of which they are a consequence. As profound a disturbance may be excited by the simplest functional decomponent as by the severest organic unlisty; so that to the eye pereadmend to the orderly progress of disease in the adult symptoms men, to have lost their value and to be calculated rather to misloud than to indicas-This exclability of the nerrous system in early life is a peculiarity which must be taken into account in every case of scule illness; and we must sudercorr to separate the local symptoms—those which point to mischief of a special organ-from others which are merely the expression of the general distress. Such local symptoms are the cough, rapid breathing, and active nares which point to acute long disease, the squinting and immobility of pupils which are so characteristic of corotrol affections, and the peculiar jurking movement of the legs which, combined with landness of the abdominal nonseles, betray the existence of colicky pain.

Local symptoms are not, however, to be discovered in every case, and even if present cannot always be relied upon to furnish trustworthy indications. Owing to the exaggerated impressibility of the narrous system a paculiar sympathy exists between the various organs. Consequently, symptoms induced by irritation in any part of the body are solden limited. to the part actually affected. Signs of distress arise at the same time from other and distant organs; indeed, the organ from which the more definite symptoms appear to arise is often not the organ which is the scient cost of discuss. These deceptive manifestations are most frequently noneed in the ense of the storage and the brain. In the case of the storage the response excited in this organ by scritation is distant parts of the body persons more to less through life. The comiting of pregnancy and disendered aterine function in the female, and of carebral and recal disease m both seves, is a matter of common observation. In the chits, however, this sympathy is still more frequently manifested. Vomiting is a common symptom at the beginning of most forms of acute illness and in many children may be excited by any casual disturbance. The brain again shows a marked sympathy with irritation of the more important organs. Headache, vertigo, dolorium, and stupor are phenomena by no means nonfined to cases of intra-cranial suffering. Any sersous inflammatory disease

in the child may be accompanied by such symptoms; indeed, the expression of cerebral sympathy may be so decided as completely to devert attention from the part which is really affected. The const of preumonia is sometimes complicated by such deceptive symptoms, and the same cause for misopprehension may be found in cases of perioaclitis and inflammation of the peritoneum. So, also, the violent nocturnal deliman—the so-valled "night terrors"—of children who suffer from worms or other form of gas-

tro-intestinal derangement must be within the experience of all. One of the best illustrations of the excitability of the nervous system in early childhood is seen in the case of copynicions. An eclamptic attack is a symptom which, in the assiority of cases, has a far less grave significance in the young child then it has in the adult. In the latter it is usually the evidence of some serious conductal lesion, and its occurrence excites the greatest alarm. In the child, on the contrary, "a fit" is a common expression of disturbance in the nervous system. It may be induced in some children by a triffing irritant; and in cases of scute illness is often seen at the beginning of the attack, taking the place of the rigor which is so familiar a symptom at the cuset of the februle disease in the shalt. Convalstons, however, are not always, in the child, of this innocent character. In earlier no in later life, they may occur as a consequence of carebral discase; but in such a case they are repeated frequently, and are encounted by come rigidity, parabose, and other signs of centric imitation. As a rule, single fits, or convolutions sunccompanied by other indication of nervolution, occurring in an apparently healthy child, are purely reflex,

and have no gravity whatever.

Extreme excitability of the nervous system is, therefore, in early childhood, a natural physiological condition which exercises an important influence in disturbing the orderly evolution of symptoms. Into an otherwise simple case it introduces a number of redundant features which confuse the observer, and may possibly divert his aftention from the actual seat of suffering. This normal nervous irritability is subject to variations. Thus, it may be temporarily intensified by courses which produce subten depression of strength, such as severe acute diarrhesa, or rapid loss of blood. In rickets, again, a premiur feature of the disease is the extraordinary excitahility of the nervous system. As a rule, however, in chronic disease, when the interference with notricien is slow and long-continued, an exactly enposite effect is produced. A young shild, especially an infant, if exposed for a considerable time to injurious influences so us to suffer both in flesh and strength, gradually loses his susceptibility to reflex irritation, and the excitability of his nervous system becomes less and less obvious until it finally disappears almost entirely. In a thild so enfeebled, the system, instead of reacting violently against any intercurrent irritation, appears almost insensible to persons impressions. If an attack of acade lilness occur, we look in vars for the usual signs of general disquiet. Even the ordinary symptoms of local suffering may be diminished or suppressed; and were it not for the increase of weakness, and perhaps for a rac of temperature, the complication might be altogether overlooked.

This obtained and profound authoritism. In all such cases, therefore, we should watch very narrowly for inflammatory complications, renormlering that such intercurrent diseases may give rise to but few symptoms, and

may easily escape notice.

Another peculiarity of early life which attracts attention, is the large share taken in infantile disorders by mere disturbance of function, and the serious consequences which may arise from derangement as distinguished from disease. Infants quickly part with their best and are easily chilled. They are, therefore, previously prone to catarrial disorders, and these, if sovers, may produce material interference with the functions of the organ affected. No doubt the excitability of the nervous system helps to increase the gravity of these demagements. The commotion into which the whole system is thrown by the attack, tends to exhaust the patient and greatly to columns the enfecting influence of the compount. In infancy, should is a not uncommon consequence of these discustors, and it is for this reason that past meeters examinations in the infant are so often unsatisfactory. It constantly happens that a young shall is sensed with alarming symptoms of illness and quickly dies, yet on opening the body no sufficient morbid

appearances are discovered to explain the fatal issue of the case.

Children differ from adults in yet another respect. Disthetic tendencies are especially active in early life. They exert a remarkable influence upon the growing body, shaping the figure, moulding the features, and so ordering the structure of organs that any interference with the autritive processes, such as may be produced by ordinary insanitary agencies, is followed by widely distributed machief. Sir William Jenner has down attention to the number of organs affected at the same time in cases of disthetic discuse in the clabb. In a had case of inherited syphilis, for tissues or organs escape; in screenist the lesions may be almost universal; and in multi tuberculosis all the conties of the body may be simultaneously affected. Thus, recording to the constitutional character of the patient and the nature of his adment, a child may die from nore arrest of function, with tissues sound, organs healthy, and no merbal appearances left to declare the nature of the complaint; or may successful and general disease which visits every part of the body and large sourcely

any organ unaffected.

It is cometimes said that in a bealthy child neuto discuss naturally topda to recovery, but this statement most not be taken without qualification. There are some discuss, such as typical fever, mentics, and purhaps erespons pressurents, which commonly run a milder course in earlier than they do in later life; but there are others, especially acute affections of the postro-intestinal tract, which weigh with poculiar sensity upon the groung. In industry the patient is so dependent upon a frequent supply of nourishment that an abrupt interference with the natrative processes, such as occurs in some forms of boxel complaint, is an event of the atmost gravity. Often it is followed by so much submestion that the infinit supadly sinks and dies. It is this sadden and complete cutting off of the nutaking supply which constitutes the chief danger of neute disease in the child; and in early life illness is often serious in exact proportion to the degree in which the alimentary card takes part in the derangement. When digestion is not arrested and the system still continues to receive nourishment, the child, if in favourable conditions and of healthy constitution, will probably receiver. The recuperative power of nature is very great, especially in the young; but that it may be feet to opende it is resential that no unfavourable condition be present to impede the natural comes of the illness. Over and above grave implication of the digestive organs, other unfoward elements may enter into a case, and each of these has an influence in weakening the natural tendency to mend. The age in a nather of great importance. A new-born infant has but a frebis lotd. upon life and satisfy successibs to an attack of acute filmss. Leter, the child may be landouted with a disthetic faint which has already impaired

his nutrition and lowered his vital energies. Moreover, he may be immpered by unhealthy surroundings which intensify the weakening influence of the original disease, and, indeed, by themselves are often powerful enough to prevent recovery.

Therefore it is only in children of healthy constitution who are placed under favourable conditions that illness can be said naturally to tend to recovery, and in them only after the period of earliest infancy has possed by, and in cases where, natrition not being completely arrested, a limited sup-

ply of manishment continues to be introduced into the system.

Sudden death in early-childhood, is due, as a rule, to larengingua, to synetype, or to colleges of the lung; and occasionally it is seen as a consequence of convalsions. Speam of the largue is the common cause of death in children who are apparently healthy. Those who die suddenly in the source of an acute almost or during containments, do so usually from syncope, or in rarer cases from thromboois in the pulsionary artery. In wasted intents sublea death is more commonly the consequence of pulmanary collapse. When a disease is about to end fatally the extremity of the danger is shown by a marked alteration in the temperature. In some cases we notice a rapid fall, the thermometer registering only 90 or 91 in the recture. In others there is a sudden increase in the bodily best, and the temperature rises quickly to 108" or 109". The natemortem cooling is usually noticed in chronic adments and in broughitta with collapse of the lung. The supil increase in lent is common in carebral affections and in cases of acute gostro-intestinal detangements. Other up-Invograble signs are lividity of face, refusal of food, threat, expeller and feebleness of the pulse, beavious and stupoe.

In armse disease when recovery takes place, convaluacence is usually rapid. In an uncomplicated case the strength appears to be recovered almost as quickly as it was lost. Directly the temperature falls, digostion and natration resome their course and in a surprisingly short time the child is well. If convaluacence is delayed in such a case it is almost invariably the consequence of a complication, and it must be remembered that this accident is for from nucosmoon in the child. In all forms of catarrial derangement—a variety of disease to which childhood, as has been said, in paculiarly prone—a guarro-intestinal complication may increase the gravity of the illness and delay the process of repair. Sometimes the deparative functions of the kidneys are imperfectly performed. Sometimes in unabsorbed patch of consolidation in the long interferes with the return of strongth. In all cases, therefore, where convaluacence from name disease is delayed, or having begun appears to falter, we should make careful examination of the various organs so as to discover the mischief and apple a

remedit.

In cases of chronic illness convoloseance is usually turdy. The delay, no doubt, is partly owing to the fact that this class of disease is common in children of a confuture liabit of body; and the strumous exchean is in itself a bur to rapid improvement. It is, however, also often due to the nature of the illness. In early life, especially in infancy, chronic ailments commonly affect the alimentary canal, either primarily or secondarily, and the progress of such complaints to recovery is invariably slow.

In the following pages the term "infancy" is confined to the two first years of fifs, or to the period which ends with the completion of the first dentition; "enricy childhood" to the period between the close of the secand and the close of the fourth year. The period of shildhood code at patienty. This important change occurs at various ages, especially in garls: and some young people remain children both in mind and body to a much later thrie them others.

In the receivation of an infant or young child every care should be taken to avoid abruptness or heavy. We must remember that we have todo with beings who act not from reason, but from instinct; that any sudden movement frightens them, a little pressure horse them, and to either case a cry and a struggle being the examination abruptly to a closs. Again, young children, as a rule, distiles the eight of a strungs lace, and if old erough to understand the object of the visit, are already prepared to look with distrust upon the "dector." Still, it is a mistake to suppose that children always make unmanageable potents. They are no doubt quick to take fright; but it should be the constant cure of the practitioner in accid any look or gesture which may arouse their asspectors. If he look, apack, and more gently, and do not harry, most young children will let the markers be examined theroughly without great difficulty.

On extering the room it is well to accustent them to our presence before we even appear to notice them at all. This interval can be usefully
accupied by questioning the nother as to the onset of the illness, and the
character of the early symptoms. We can also take this opportunity of
impecting the notions or vomited matters. In scareling into the listory
of the race it is especially desirable to obtain some starting-point for our
investigations. The question "When did the indisposition begin?" often
secures only a suppo reply; while an inquiry as to the time which has
chapsed since the child was last in good health may obtain an account of
more or less interference with notivition and indefinite malaiss extending
over a considerable interval. Some tact is often required in obtaining a
itefinite account of the beginning and early progress of the illness. It is
important to avoid suggesting a reply by the character of the specifica,
while it is often necessary to be minute in our inquires in order to stimulate a flagging memory.

In infants and young children much may be learned from mere inspection of the face. It is an advantage in these cases to find the patient asleep. We can then study at leisure the colour and general expression of the face, the form of the features, the presence or absence of littles or arrukhes, and remark if the same set in respiration or the sychole closs incompletely. We can be also notice the attitude of the child, can count the pulse and respiration, and can observe their degree of regularity to any deviation from the healthy state. Even if the child be awake usage of these points can be noticed if we approach quietly and do not speak to so offer to teach the patient. Any movements be may make at this time in list cot most receive disc attention, for they often convey very udueble information.

These points laving been noticed, the temperature should be taken. In doing this, if the patient be an infant, it is desirable to introduce the bulb of the thermometer into the rectain, for at this early age the difference between the internal and external temperature of the body is often considerable. The child should next be completely stripped of his clothes. The state of his skin can then be ascertained, noting the presence or absence of emption; and a careful examination must be made of the abdomen and clost. If the child lose his temper at this time, the quality and strength of his cry should be remarked. At the coll of the widt the game, mouth, and theory should be impacted and if any of the child's water can be procured, it should be examined for allounce, and its density and degree of scidity mexitained.

After this mpid skeich of the method upon which the clinical examination of the infant and young child about the conducted, the chief points to which attention must be directed may be considered more in detail.

In the new-born infant the tief of the face immediately after birth is a dull red. The redness, however, soon begins to subside; in a day or two the complexion assumes a slight sellow that, and then passes into its normal coloring. The yellow that said its diagnosis from infantile jamelies.

are referred to elsewhere (see Jumplies).

The clear fresh complexion of a healthy baby or young child is familiar to every one. A loss of its parity and elearness is one of the first indications of digestive derangement. The face becomes muldy leoking and the upper lip whitish or blaish. Blueness of the upper lip in early life is a common sign of laboured digestion. In some clashen difficult digestion is shown be an earthy tint of the face which spreads to the foreland. It appears a short time after the med and may last several hours. In chronic bowel complaints the earthy tint is constant. It is common in cases of chronic diarrhosa in the indant, and if at the same time there is not emaristion, the derangement is likely to prove obstinate. In syphilis the prominent parts of the face—the nose, clacks, chin, and forehead—assum) a swarthy has In harbecous disease the complexion is poculiarly pulled and bloodless; in rickety children whose splaces are greatly enlarged it. has a greenish or hint olive cust; and in cyanous the face has a characturatio leaden that the conjunction are congested, and the exclids and lips thick and purple. Limits of the skin round the mouth and uses with a purple tint of the cyclide is common as a roult of deficient acration of the blood. In severe cases the cheeks at the same time have a dull white color, and the symptom is an unfacoumble one. In the sposmolisstage of whooping-cough the face looks seedlen as well as firid, the lips and eyelids are purple and thick, and the conjunctive are congested and totelsood auto-

In addition to the actual tint of the face the general expression must receive attention. In a healthy bake the physiognomy denotes merely sleepy context, and no lines must the smooth uniform surface. Pain is indicated by a contraction of the brows which wrinkles the skin of the foreheal. This is especially noticeable if the head is the sent of suffering. If the pain be in the abdomen the nose often looks along, the nostrils are dilated, and the child draws up the corners of the mouth with a peculiar expression of distress. In every case of serious discuss the face, sten in repose, has a haggard look, which must not be disregarded. If this he recompanied by a hollowness of the checks and eyes the result is a glassily expression which counts assupe attention; but a distressed look may be seen in the face although there is no loss of roundness of feature. If this be the case, even in the absence of striking symptoms, we may confidently predict the onset of aerious disease.

Often an impaction of the face will help us to a knowledge of the part of the body affected. Many years ago M. Jadelot pointed out certain lines or furnoses in the face of an alling infant which by their position indicate

the next of the drangement, thus :

The occulo-regularite line begins at the inner cantims of the eye, possess thence downwards and outwards beneath the lower lid and is lost on the cheek a little below the projection of the malar bone. This line points to discuss or demagement of the brain and nervous system.

The used line rises at the upper part of the all of the ness and pusses downwards curling round the opener of the mouth. This line is a constant feature of abdominal mischief, and is never absent in cases of gastro-

intestinal decongement.

The Island line begins at the angle of the month and runs entermis to be lost in the lower part of the fare. This is more shallow than the preceding. It is a fairly trustworthy sign of disease in the image and sig-

prostation:

These lines have a distinct practical value and should be always attended to. We should also notice if the sychila close completely, for imperfect closure of the lide during sleep is a common sign of weakness. Moreover, it such not be forgotten to accurate the condition of the pupils and the presence or absence of sepiral. The value of these symptoms, and of others connected with the eye, is referred to elsewhere (see page 261). The nones must not be forgotten. If they set in requestion the nonement is a common accompaniment of laboured breathing and often indicates an impeliment to the respiratory function. It may, however, be present in some where there is no conscious dysprom, and is concludes seen in simple pyrexia. Even the shape of the features must be attended to. An closured head with source forcload and small lower jaw are characteristic of rickets, a broad flat bridge to the nose, especially if conjoined with prominence of the forchead and absence of evelouse, suggests syphilis; and a big globular head summounting a small face and lattle pointed chim

indicates unmistakably chronic hydrocephalus.

The attitude of the child as he lies in his cot is not to be overlooked. Sometimes it is characteristic. A healthy infant or young child, even if lying on his back, inclines to one side and turns his bool so us to bring the check in contact with the pillow. If a baby he found lying noticulars on his back, with closed over and face directed straight upwards to the ceiling above him, he is probably the subject of serious disease. This position may be seen when the child is unconscious, as from tubercular meningitis; or is profoundly depressed, as in nente inflammatory diarrheat. If the child he on his side with his head greatly retracted on his slimithers, it is a suspictors sign of intra-crunial disease. If in such a position the breathing is middle and house, the case is probably one of taryngilis, or there is some impediment to the passage of air through the giottis. If the patient be found in his cot resting on his albows and knees with his forehead buried in the pillow, or if he sleep lying on his belly. there is no doubt abdominal disconfort. These positions are common with rickety children. If the child press his cyclids against the pillow, turning partially on his chest, we may suspect intolerance of hight.

Healthy infants and children sleep perfectly quietly. Frequent turning of the body or twitching of the muscles generally indicates feverishness or digestive decargement. If the shift move his bend reastantly from side to side on the pillow, he is probably amoved with pain in the head or ear. Frequent carrying of the hand to the forehead or side of the least has usually the same significance. If the child repeatedly dex the thirds on the abdomen, and cryviolently in sudden parcoysms, he is probably

suffering from colin.

The cry of the child is a symptom of considerable importance. It is usually should by lumper or massiness, and from the minner of crying we can often gather considerable information. A honory infant in most cases elenches has hands and faces his limbs—both arms and legs—as he ofters his complaints; and will often continue to do so until his desires are satisfied. Thirst may also be a cause of crying, and may be empected if the child sucks his hips repeatedly, has a dry mouth, so has been suffer-

ing from purging. If he be testured by enlicky pain, the cry is violent and parceyonal, and is accompanied by uneasy movements of the body and jerking of the lower limbs. The belly is also fall and hard, and there is often a blue tint round the neath. A shall scream attered at intervals, the child lying in a drawsy state with closed eyes, is suggestive of tabercular meningitis. A constant mappenside screaming is often the consequence of enr-ache. This pointal affection is very common in infents, and arould be always suspected if the lementations continue without internities on, and the child frespectly presses the side of his land against his mothers breast. The pain of pisuries will also cause isolent crying. In this case pressure upon the sides of the chest, as in lifting the child up, conses as evident increase in his suffering. Any alteration in the quality of the cry must be noted. In may be honey in a young infant from infanted syphilis; in an older child from laryagities or colorgement of the translation chards.

In a leadily infinit a cry is excited at once by anything which courses him discomfort or inconvenience; therefore the above of crying is a symptom which should always receive due attention, as it may be clean serious disease. In inflammatory affections of the lungs, in polanousry colleges, and in advanced rejects where the leases are softened, a child will bear considerable discomfort without load complaint, for he lass a pressing want for air and dare not hold his breath to cry. So, also, in severe distribute or my office illness which causes great reduction of strength, the child, on account of his weakness, crice little if at all. In cases of profound weakness he will often be noticed to draw up the corners of his mouth and wrinkle his brows as if to cry without making are sound.

In the act of crying tears are copiously secreted after the age of three or four months. In serious disease, however, the helicymal secretion often fails. Therefore the absence of tears must be taken to indicate con-

sidorable danger.

The pale in the infant can seldem be counted, except during sleep; and even if its rapidity can be ascertained the information thus derived is of little value. The rapidity of the pulse in infancy is constantly varying. The least movement excites the heart's action, and mental emotions, such as fright or anger, almost double the moidity of the rardiac contractions; so that, according as to whether the infant is awake or asleep, is perfectly quiet or has just moved, the pulse may vary from between 80 and 90 to 160 or 180. As a test of physical vigour in bubies the pulse is worthiesa. In this respect the fortingle is of far greater value. In itsents under twoley months aid a sinking of the fontanelle is a cure sign of reduction of the strength cand in touching a child of this ago our first cars should be to pass the fager over the top of the head and ascertain the condition of this part of the skull. In wasted liables the featunelle often forces a cupshaped depression; and if the loss of fiesh is very midd, as when a perfesse drain occurs from the howels, the crunial benes may often be felt to overlap slightly at the summer. Excess of fluid in the skull-cavity or a hypersonic state of the brain causes bulging and tensoness of the fontanelle. Unless very distended the monthsane is not motionless. It can be seen to move with respiration and to sink appreciably as air is drawn into the

After the period of infancy has passed, the pulse becomes a far more trustworthy guide. During sleep it is fifteen or twenty bests slower than during the waking state, and may then be occusionally irregular in shythm or even completely remartent. When the child wakes the pulsations ineremo in frequency and usually rise above 100. If at this age the palse is found to full as low as 60 or 70 in a child who is not askup, and to internate completely, the sign may be significant of tubercular accomplitis. This

matter is electione referred to (see page 359).

The respirations should be always counted. In new-been infants their number is about 40 or perhaps more in the minute. But the breathing soon becomes less rapid, although for a long time the movements are more frequent than in the adult, and even after the second year are mully over 20 in the minute. The normal average is difficult to accertain, for like the pulsations of the heart the breathing series greatly in repidity. It is rather slower during sleep than when the child is awake, but is opt to become more harried from slight causes. More important than the netual rapidity of either the breathing or the pulse is the estio the two bear to our another. If the breathing become rapid out of proportion to the pulse, the discrepancy should be carefully noted. The normal ratio is I to 3; or 3.5. If this proportion becomes greatly perverted and we find one respiratory movement to every two bests of the pulse, we should suspect. the presence of pneumonia or of pulmonary collapse. The regularity of the respiration is also to be noticed. A slight irregularity, especially in force, is common in infacts; but if the breathing become markedly irregular, the symptom may be an important one. Frequent heavy eight and long pames, during which the chost is perfectly motionless, are very suspigious of tubercular montugitie.

The temperature of the child ought always to be ascertained. It must be taken with care. In a healthy infent the temperature of the rectum in about 10°, and is fairly constant throughout the day. It rises half a degree or so townris the end of digretion, but a marked difference between the noming and evening temperature is not noticed in a bealthy balty who receives proper attention. According to Dr. Squire, if the buddle heat is fromi to vary considerably at different times in the day, the symptom should suggest neglect on the part of the nurse or delicacy of conditation. on the part of the shild. If the infant be kept too long without food the temperature falls, and will then rise again considerably after the meal. also appears from Dr. Squire's interesting observations upon young lubies, that the temperature is rather lower during sleep than when the child is arake. Even after the age of infancy the temperature is subject to frequent variations from slight causes; and in young children mental emotion will often induce a degree of fever which may be a source of perplexity. In children's hospitals it is a common observation that the bodily heat on the evening of admission is high even when the disease is not one nearly

attended with fever.

On account of the excitability of the nervous system in early life—a peculiarity of childhood which has been before referred to—children are very subject to what has been called "critative fever," i.e., to a form of previous children are start subject to what has been called "critative fever," i.e., to a form of previous children are secured from the system by earliest sources of invitation. Dentition, as is explained absorber, is a frequent promoter of this form of februle constances, and a pyroxin induced by this means is apt to complicate derangements ordinarily son februle and he a cause of confusion. So, also, irritation of the bourds by sayinda, indigentible food, or pressible weeks, is a common cause of obviation of temperature in the young. The februle morement resulting from the pressure of a local seriount, like other forms of pyrexia in elablicated, is generally remathent; but the remissions are not always found at the same period of the tempty-four hears. There is not always a fall of temperature in the morning and a rise

at night. One of the peculiarities of this form of febrile disturbance is the irregularity of the fever. In a young child a temperature higher in the morning than at night should always suggest some reflex cause for the

PATRICIA.

It is very important not to neglect the use of the thermometer in judging of the heat of the body, for not only is the hand very deceptive as a guide, but the skin of the patient may appear to be cool although the internal temperature is several degrees above the normal level. It is not uncommon in cases of inflammatory diarrhou to find the extremities so sold as to require the application of a last bottle, while a thermometer placed in the rectum registers 104° or 105°. Sometimes in young children the pyrexia will reach a very high level. At the end of an attack of tubercular meningitis the temperature is often 100° or 110°; and the same degree of febrile heat is occasionally seen in cases of some gestro-intestinal inflammation. In either case the symptom betokens extreme danger; although it must not be concluded that the illness will involtably prove final. I have known a boby of a few weeks old recover after its restal temperature last risen to the alarming height of 100°.

Sometimes instead of an elevation the thermometer may show a lowering of temperature. In infants any reduction in the bodily heat is usually a sign of dedictent nourishment. In a buby exhausted by chronic romating or purging the temperature in the rectum may be no higher than 97°. This is of course an extreme case; but a lesser depression is often found in infants insufficiently nourished, either from watery breast milk or an unsuitable distury. Again, in convolvence from neuto discuss the temperature mentily remains for some days or even weeks at a lower level than that of health. This phenomenon may be often noticed after typical and

the other eraptive fevers,

Before leaving the subject of temperature, reference may be made to the pyrecia which sometimes attends rapid growth. Several cases have come under my notice in which growing girls were exciting great maxiety by a persistent evening temperature of over 100°. In one such case, a girl of trades had been kept in bed for free weeks and treated for typheid fever, the girl all the time begging to get up and declaring herself to be perfectly well. The patient was brought to me from the country for an epinion, as the temperature for six weeks had varied every night between 10° and 100.6°. I examined the child carefully and could find newhere any sign of discuse. She booked healthy and was said to be greening rapidly. I accordingly advised that she should be no lenger treated as an intestial, but should be allowed to get up, be put upon ordinary diet, and be sent as much as possible into the open air. This was done, and at the end of a formight the temperature became normal and did not alternated rise.

Having obtained all the information we can without unnecessarily disturbing the patient, we should next, in the case of an infeat or young child. have the clothes completely removed so as to be able to make a thorough examination of the surface of the body. We can thus notice the condition of the skin as to texture and clasticity, and remark the presence or absence of emptions or signs of inflammatory swelling. In a healthy young clast, the skin is delicate and soft, and of a bountiful pinkash-white text. If it feel dry and have an earthy has, the change is suspecious of chronic bowel complaint. If the skin is senting in clasticity, we should asspect tolerous lasis or small discusse, and if the kidneys be performing their functions importerly, the skin may be often seem to be in wrinkled folds upon the abdomen. Drymoss, with a dingy has of the skin, is also common in some

forms of hepatic disease, and occasionally in chronic tubercular peritoriitis. At this part of the examination, any sign of tendenness either general or local should receive attention. The sharper cry of join is usually to be readily distinguished from the cry of irritability or anger. In rickets there is general tenderness which makes all pressure poinful. In pleurisy pressure upon the sides of the chest, as in lifting the child up, is a cause of nexts suffering. Sometimes signs of local tenderness can be discovered, such as may accompany the formation of matter Issueath the surface; or again, slight tenderness of a joint may be the only indication of rheuma-

tion in the child. The attention should next be directed to the requiritory assessments. In healthy young children respiration is chiefly displanguatic. Foreible movement of the thorseic walls is a sign of laboured breatting, and is a constant symptom of breacho-paramonia. Great recession of the former parts of the chest suggests an impediment to the entrance of air into the lungs. If at each importaion there is great recession of the epigostrium, the lower part of the storaum being forced inwards so us to produce a deep hollow in the centre of the hosty, the obstruction is probably in the throat or laryax. Such a depression is seen in the case of retro-placyngeal abscess, in stridulous laryugitis, and diphtheritic croup. If the chest fall in laterally so as to produce a deep groose, running downwards and outwards at each side of the chest, while at the same time a horizontal furfor form at the junction of the class with the abdomen, the impediment is due to softening of the ribs. This is characteristic of rickets. Sometimes in children who suffer from enlarged totals a copychined depression is seen at the lower part of the steenam. It is right, however, to say that this deformity is not confined to children with enlarged tonsils. I have seen it well morked in patients in whom the pharens was perfectly perual, and in whom no impediment appeared to exist to the entrance of air into the lange. If the chest move more freely on one side than on the other, we should suspect grave mischief on the side on which the movement is hungered. Still, in the child serious disease of the chest may be present without our being able to detect any such difference. Even in cases of espania pleanate efficient to impairment of movement in the intercostal spaces of the affected side may be visible. Marked contraction of one side of the thorax with curring of the spine is suggestive of a late stage of plemisy, or of an industed hug.

In the healthy shald the absonce moves freely in respiration. If it be noticealess, therefore, an inflammatory lesion of the belly should be suspected. If the superficial voice of the absonce are unmaintally visible, the symptom is suggestive of some impediment of the abdominal circulation, such as would be produced by embryed measureme plants or bepatic discour. In young chaldren the belly is always deproparticularly large, its size is due to shallowness of the pelvia to flatness of the displanger, and to laxness of the measurements walls, which yield before the pressure of the flatus in the bowels. In some healthy infants the abdome to such larger than it is in others. The difference is probably due in most cases to an engagerated amount of flatus formed in the bowels during digestion. The size of the belly from this cause senctimes alarms pursues; and it is not uncommon to be consulted with regard to this point in the case of young children who are in every respect perfectly healthy. Often knower, the enlargement is due to increase in size of the liver and sphere, to the presence of a growth, or to assumulation of fluid in the perstonents. The size of the liver and sphere may be accordanced by placing the hard flat upon of the liver and sphere hard flat upon

the abdomen, the fingers pointing to the chest, and pressing gently with the finger tipe. In this way with a little practice the edges of these organs can readily be felt. At the same time, if the child be not crying, we can ascertain the degree of tension of the abdominal wall and the presence or absence of fluctuation. Abservant tension of the parieties, especially if it be more marked on one side than on the other, is suggestive of peritorities or absence of the bowels. For the means of diagnosis of the several conditions which give rise to abdominal enlargement the reader is referred to the chapters treating of these subjects.

If, instead of being distended, the belly is markedly retracted we have reason to expect the presence of inhercular moningitis. To examine the abdominal organs at all satisfactorily the child must he on his back with his head and shoulders unsed by a pillow. The mother or muso should sit upon the bed by his sale, and the practitioner should take care that the hand he applies to the belly is warm and does not press too abruptly so as to give pain. This part of the commission is usually submitted to without

opposition if the child be humogred and cheerfully tailed to

Even an examination of the chest can generally be undertaken without fear of failure. Infants, as a rule, seldon give much trouble; and if there is any serious discuss present in the lung, they are too much occupied by the needs of respiration to spare time to cry. In early childhood there is more reason to fear opposition, but with patience the commination can usually be suried to a successful issue. A stathescope is soldon objected to if it be first placed in the child's hand and called a trampet. For further remarks upon this subject and the pseulinities of the physical signs in childhood the scader is referred to the special chapter on examination of the chest in children.

Inspection of the mouth and throat abound he always deferred to the end of the risk, as this part of the examination invariably produces every manifestation of displeasure. An infant will often protrude his tongue when gentle presents is made upon his thin, and a farger can be usually passed over his game without sign of opposition; but to look at the throat we are forced to depress the tongue. If any symptoms are noticed requiring the operation, every promotion should be taken to render it successful, The nurse sitting in a low chair facing the window or a good lump, holds the child straight upon her lap with his back resting against her chest, She then with her arm thrown round his body prevents the patient from changing his position or mising his hards to Incasouth. At the same timean attendant standing behind her with a hard on each sole of the child's face holds his head in a convenient position. Matters being thus arranged it is the practitioner's own first if he do not obtain a good view of the forces. Forcess is absolutely necessary at this point. Any other plan is equally annoying to the patient, and is almost certain to end in failsfee. Before insperting the throat, the sides of the neck should be examined for exidence of swothen corvical glands,

In score cases it is important to accertain if the child takes the breast, sucks the bottle, or drinks from a cup with case. In infantile tetanos the many fact that the potient is able to smallow enables us to speak less unfareurably of his clauses of recovery. In cases, too, of apparent stupor, if the child still continue to take his food the sign is a favourable case. If a child be suffering from neuto lung disease, he suchs by short statches, stopping at frequent intervals to draw his breath. A syphilitic child with occlusion of the sures suchs with great difficulty, as his cose is useless for respiratory purposes and all air has to pass through his mouth. An infant

with leaf thrush has much pain in drawing the milt from sorquest of Lis month and tongue, and may refuse his bottle altegether. If the throat be sore the child availous notally, and often relimpuishes the riggle to cough.

Lastly, the practitioner should be careful to inspect the counted matters and discharges from the bowels, as the description of their appearance given by the best nurses is rurely to be trusted. The varieties of loose stool are elsewhere considered. Food vomited coar from the stomarh indicates a catarrhal state of the gastrie mucous membrane. Much mucous mixed with the ejected matters is also a sign of the same condition. Vomiting is not, however, always a symptom of distress. An infant who has swallowed too large a quantity of traffs, or loss taken his bottle too lastly, will often eject a part of the nead; but in such a case there is nothing offensive about the matters thrown up and the child himself shows no sign of distress.

In the treethand of disease in early life the arimal administration of physic is of less importance than a careful regulation of the diet and attention nursing. It is the shifty of the proper to see that no impeliment is thrown in the way of the proper working of the various functions; that the stomach is supplied with food it can digest, that the skin, the kidneys, and the bowsh are encouraged to carry on their duties as commetories, that the six of the room is kept pure and frequently renewed, and is

moreover maintained at a suitable temperature.

Februle attacks are very common in childhood, and if the temperature is high (i.e., above 100°), which it may be from very slight and transcut causes, the child should be confined to his hed and hept there as long as the pyreiin continues. In all forms of faver the child should occupy a large, well-continues. In all forms of faver the child should occupy a targe, well-continues. In all every care should be taken to maintain the air of the room fresh and pure. Still, no denught must be allowed. If the window is open the patient must be surupulously protected from all entrents of air. No discharges from the body, soiled lines, dirty plates or dishes should be allowed to remain in the sick-room a moment longer than is accessing; and in the case of the infectious fovers the excreta must be disinfected at erac, and the sided sheets and other lines steeped after removal in a tab of water containing carbolic acid or other disinfectant.

All roise and busife must be prohibited; and few persons must be allowed at the same time in the room. If the child require assumement, he must be allowed only such unexciting diversions as books, pictures, and quiet games can afford. His tood should be of a light, westimulating kind, such as thin broth milk light puddings; and jolly. His thirst may be assuaged at frequent intervals, care being taken, however, that only small quantities of final are allowed on each occasion. Too large quantities of heatid distend the stomach impair the digestion, and help to promote diarrhoss. This is a fact of some moment in the treatment of discover where purging is a common symptom, as mensles and typhoid fever. It. is advisable to make use of a small glass holding about two owners, for the child will be usually satisfied if allowed to drain this to the bottom. the patient grows weaker and requires more decided support, he may be given pounded underslone nutton, strong beel-essence, yours of egg, and, if stimulants are required, the brandy-and-egg nexture of the British Pharписорона,

In cases where deplutition is difficult or impossible, as in infantile tetaius or the paralysis which follows diphthoris, and in all cases where from wilfulness or inespecity an adequate supply of food is not taken, it may be necessary to find the child through a tube introduced into the steamch. This operation is best performed by passing an elastic catheter through the nose and down the guilet. The instrument is more conveniently introduced through the nose than through the mouth. Less opposition is aroused by this method, and little or no irritation appears to be set up in the meal passages. The tube ' properly oiled must be directed along the flow of the meal cavity into the pharyux, and can be then coolidy posted down the guilet into the stomach. If it catch against the top of the inspirat, a spaceholic cough is excited. The instrument must be then withdrawn slightly and again pushed forwards. There is little difficulty about the operation if the child's head be directed well backwards. By this means hould food can be administered regularly; and in certain discuss—operably infantile tetures, where nourishment is argently needed and is indispensable to success in the treatment—feeding through the nose

becomes a valuable addition to our resources. If the power of swallowing be unimpaired, a simpler method may be In such a case it is only necessary to carry the food into the fraces. If other means are not at hand, fluid nourishment may be poured directly into the nestril as the child lies in his cot. The liquid at once gravitates to the back of the throat and is semilowed as it reaches the planyax. If preferred, the fluid may be injected through a doort wants chone tube passed through the nose to the upper part of the gullet. In most of these cases, however, the simple and ingenious method devised by Mr. Scott Battanes," and introduced by him into the East London Chilshow's Hospital, may be resorted to. In the case of weakly or collapsed infinity this method is invaluable; but children of all ages, if prestrated by illness, can take nourishment more conveniently by this means than by any other. The apparatus is of the simplest kind, and consists needly of an ordinary glass syrings with a piece of India-rubber tubing, four inches long, slipped over the nozzle. The syringe is filled in the ordinary way by drawing up thad through the taking. The take is then passed between the staid's lips towards the lack of the tengue and the contents of the syrings are slowly discharged into the mouth.

These different methods of feeding are all useful. The stemech-tube passed through the nose should be suppleyed in all cases where deplatition is impaired, from winterer cause—either from influentatory conditions of the threat, from loss of excitability of the pluryux owing to cerebral discase or narcotic poisoning, or from paralysis, as after diphtheria. The syringe-feeder just described may be used in cases of great weakness and posatration, and in all cases where the power of swallowing is not inter-

sered with

The question of reducing temperature when this rises to a dangerous height is no important one. Children often bear a high temperature well, and it is not always easy to say what degree of heat constitutes hyperpyrexia in a child. When the fever is due to a septic cause it is perhaps less well borns than when it is the consequence merely of a local inflammation. In any case if the temperature rise above 106°, or if the patient seem to be distressed by a less degree of heat, it is advisable to sponge the surface of the body with topid water. If the fever be not reduced by this means, the

The best table to use it a relication indiscrabber cultator mulicipally self-use to block. A No. 7 is the east under suc.

[&]quot;Mr. Enthus's paper on the Forced Fording of Children, in the Larvet of June 10 and 20, 1990, in which the turious methods of feeding are described, is full of interest and instruction.

child should be placed in a both of the temperature of 75°, and to kept there until the pyrexis undergoes a sensible dimination. Usually sponging the surface will reduce the bodily heat by several degrees, to the immediate relief of the patient. In cases of inflammatory discribes, even in balance of a few months old, the temperature often rises to 100° or 110°, and the child passes into a state of profound degreesion. When this impensidesth is inevitable unless the pyrexis can be quickly reduced; and topid bathing is often successful in greatly returning if it do not actually present a fulfil issue to the illness.

In all forms of fever the comfect of the patient is greatly promoted by the use of two cots—one for the day, the other for the night. In cases of pericurditis with copious offusion, in the later period of typhoid force, and in other instances where the debility is extreme or the action of the heart hampered and feeble, the change from one set to the other must be made with every pressution to spare the child all spontaneous movement,

and to keep him is a recumbent posture.

In the treatment of disease in early life the remedies at our command are the same as are useful for similar conditions in the adult. On second however, of the supressible nervous system in the young subject external applications are of greater importance in childhood than they become in after years. Amongst the reasons of the greatest value boths form a class of so little importance. According to the temperature of the water conployed the both becomes a solutive, a stimulant, or a tonic, as may be required; and in these different shapes in often resorted to with great advantage. The usefulness of topid bothing in reducing fover has already been referred to.

The serve but (80° to 85° Fab.) is very useful in cases of convulsions or great irritability of the nervous system, shown by agitation, restlessors, spaces or disturbed sleep. It calms the coefficient, allow spaces, promotes the action of the skin, and induces sleep. On account of its displaretic effect were bottong is of great service in cases of Bright's discuss. In infants the warm both has a sensible influence in promoting the action of the bouch, and in cases of constipation is often a valuable addition to purgative medicines. The child should remain from ben to beenly minutes in

the warm water.

The hot dots (95° to 1980 Fah.) is of great value as a stimulant where there is endden and severe prostration, such as seems in cases of profuse distribute argent voniting, shock, or other cause which induces a temporary depression of the vital energies. When employed in this way as a stimulant the child must not remain too bing in the water or the stimulant effect will pass off and be succeeded by depression. For an infant three, and for an other child five minutes will be sufficient immersion. The patient can then be removed, wiped rapidly dry, and had between blankets with a lice bottle to his feet. This both pay be made more stimulating by the addition of mustard. Hour of suntard, in the proposition of one cames to each gallon of water, is mated up with a little water water into a thin paste and phood in a piece of muslin. This is squeezed in the bot water until the latter becomes strongly simplied. So prepared, the musland both is an important remedy in cases of prostration and collapse. The stable should be held in the buth until the arms of the attendant supporting him begin to tingle.

The cold desolet is a tenie of the utmost value. It must, I conver, be employed with discretion, for the patient if weakly seldem obtains a proper reaction unless special promutions to taken. If the child both blue or

feel chilly after the bath, the shock to the system has been too violent. For a weakly child the cold denote should always be given in the following way: On rising from his bed the child is thoroughly shampsoed all over the body, using steady frictions especially to the back and lone. His skin being thus stimulated and prepared to resist the shock of the cold water, the patient is made to sit in a few inches of water as hot as he can conveniently hear it, and then immediately a pitcher of cold water (35° to 60°) is emptied over his shoulders. He is then at once removed, and well rubbed with a rough towel to assist reaction. In winter the both should be placed before the fire, and every care abound be taken to make the process a supid one. The shampooing will occupy from ten to aftern minutes, but the doucke should be over in as many seconds. It is well to allow the child a drink of milk or a bisenit before beginning the process; and when dried the child may return to his bed for a short time if thought desirable; but after one or two repetitions of the bath this precuttion will be unnecessary. So employed, the bath must be regarded purely as a therapsutic agent, and not as a cleaning process. The body may be washed in the onlinery way at night before the child is put to best.

The cold douche is of great service in all cases of weakness, whether this be due to acute or chronic illness, and is only inadmissible if the lungs are actively discussed or there is fever. It is especially useful in cases of long-standing derangement and in the scrolulous cacheria, and may be recommended without hesitation for children of very fragile appearance. In addition to its tonic effect the bath has another valuable quality in that it strengthens the resisting power of the body against charges of tempera-

ture, and lossens the susceptibility to cold.

The hot and mustard baths may be considered in the light of counterirritants, which not through the surface generally and produce a powerful atiunlating effect upon the fingging nervous system. A similar means of rousing the vital energies consists in the employment of stimulating limiments. Thus, in cases of atelectasis, energetic frictions with a strong arritating application will often enable the child to expand the collapsed portion of lung, and thus were him from immediate danger. In many varieties of local disease, counter-irritants are of extreme service. They may be used in the form of blistors, mustard positions, and pointing with the tincture or linment of iodine. The kind of application best suited to each partiestfar case will be described in the proper place. It may be here stated, how-ever, that blisters must be used to oblidres, especially to young infants, with great caption; and Bretonness recommends that in every case a thin layer of oiled paper should be interposed between the vescrating surface and the skin. A blister applied too long leads, as M. Archaudault has pointed out, to a sore equivalent to a burn of the third degree, and heals very slowly. Caution in the application of the more powerful counterinitiates is especially to be observed when the patient is very young, or is the subject of defective mutrition or of chronic discuse. In such cases obstimate ulceration may be set up, or gangrens of the skin may be induced, not to mention the exhausting effect upon a weakly patient of the pain ranged by the application of the irritant, and the effusion of a highly allinminous thrid. If diphtheria he epidemia in the neighbourhood, blisters should never be supplied as the resulting sore may become covered with the diphtheritic exulation. For a young child a blister should be of small size and raight quickly to be removed. Under twelve months of age can-tharidine applications should rarely be resented to. If used during the second year, the blister may remain in contact with the skin for an hour and a helf. For each additional year of life a further half hour may be added to the length of time the application may be employed; so that for a child of four years of age the blader may remain two hours and a half; for a child of five, three hours. If resteation has not been produced when the unitant is removed, a warm bread-and-water positive will non cursu it to appear. The fluid can then be let out and cotton washing applied.

No other dressing will be required,

Assembly described rescales also holds stimulants take a high place. Children reduced by severe diffuse respond well to the action of also hel, and a few timely doses of this medicine have often, in a doubtful case, formed the scale in favour of recovery. So, also, usually children with poor appetities and feeble digestions often benefit grantly by an allowance of wine with their proceipal meat. Stimulants may be prescribed for the youngest infants, and in cases of great weakness may be repeated at frequent intervals. When the potient is very young and requires energetic stimulation, a small quantity of wine or brandy often repeated is to be preferred to a larger quantity given at more distant intervals. The remedy should not be continued too long. It must be remembered that a stimulant is not a tonic. It is given for an immediate purpose, and should be withdrawn

or greatly reduced in quantity when the object has been attained. Tomes, such as quinine, iron, the mineral acids, and regetable bitters, are also of great value in the treatment of chaeses in the child. But they require to be given with judgment, and must not be administered indiseriminately because the patients look week and puls. A feeble-looking, pulled child, is not always to be benefited by iron and other tonics. Such a condition is often dependent upon a chrome form of dyspepsia, the result of repeated cutarries of the stousiels. In such cases a proper selection of food, and alkalies given to diminish the secretion of muous and neutralise scicity, will seen produce a marked improvement in cases where tonics have been given without good result. It is only when local demogracent has been remedied that the torse becomes useful. The same remarks apply to codditor oil. This valuable remedy is inappropriate so long as any directive derangement remains uncorrected. When the alimentary canal has been brought into a healthy state, the oil is of enormous service. and may be given in suitable doses to the youngest infinis. It must be remembered, however, that the power of diposting fats in early life is not great. Under twelve months of age ten drops will be a sufficient quantity to be given on each normsion; and if any oil is noticed undiported in the stock, even this small quantity must be reduced.

In cases where, although nourishment is urgently required, oil cannot be digreted, the remedy may be rubbed into the skin. The external application of oil is of service in all cases of chronic weakness and wasting. It is useful not only as a means of introducing neurishment, but also as an agent in promoting the action of the skin, which in most forces of chronic derangement is upt to become inactive and dry. The application should be made at night. Any oil is useful for the purpose, and it is not indisponsable that cod-liver oil be susployed. The oil should be warned and then applied to the whole body with a piece of fine sponge. At the same time if there is any special weakness in the lank or elsewhere, vigorous friction with the oil may be used to the part it is desired to atrengthen.

Afterwards the child should be put to bed in a fannel night-dress.

In the administration of drops to young subjects, we must remember that the dose is not always to be calculated according to the age of the child, but that children have a cursous tolerance. Ice some remedica and as curious a susceptibility to others. Opium, it is well known, about his given with caution. The remedy is, however, of extreme value, and if care be taken to begin with only a small quantity, and to postpone a second dose until the effect of the first has been ascertained, no ill effects can possibly be produced by the narcotic. Thus, for a child of twelve months old suffering from purging, if one deep of hashinum has not produced drowsiness, a second may be given in six hours time; and the remedy will be well

Bellislooms can be taken by most children in large quantities. Sometimes the characteristic rash is produced by a small dose, but a much larger quantity will be required to dilute the pupil and a further considerable increase before we can produce dryness of the throat or other physiological effect of the shug. It is often necessary to push the dose so as to produce dilutation of the pupil. Many cases of necturnal incontinence of urine above no sign of yielding until some symptoms are produced indicating that the system is responding to the action of the remedy. A child of twelve mentlis old wall usually take fifteen, twenty, or more drops of the incture of belladoma three times a day; and often we can push the dose at this age for beyond this limit.

Besides beliadonna children bear well quinine, digitalis, arsenie, lebelia, and many other remedies. Mercury rarely salientes a child, but has often a powerful effect in deteriorating the quality of the blood. A child is

usually left excessively pale at the end of a course of this drug.

On account of the frequency of dignetics disturbances and the tendency to acidity in early life, alkalies form a very valuable class of remedies. A dose of bicarbenate of sola or potach neutralises acidity, elsechs hypersecretion of nucus, and if given with a few drops of spirits of chloroform and an accountic, stops formentation, dispels flates, and reduces spass. In all varieties of dyspepsis in the child, and in many forms of locuracies of the bowels, this combination is of the utmost value.

One word may be said with reference to the abuse of sperient medicines which is so common in the nursery. Delieste children have often died from the effects of a dustic purps, and namy a case of typhoid fever has recoved a fatal impulse by this means. An aperient is the common domestic remedy—the corrective to be administered at once upon the slightest appearance of illness; and prescribing chemists invariably recontored it as an antidote for every iff. But constipation is only one of many cases of malaiss, and to irritate the bowels unnecessarily with a strong purgative powder may do serious injury to a weakly child.



Part 1.

THE ACUTE INFECTIOUS DISEASES.

CHAPTER I.

MEASLES.

Mayatra (rabeola or morbili) is one of the commonest infectious fevers to which children are liable; and few persons arrive at adult years without having suffered from an attack. It affects children of all ages, and is far from uncommon in infants. Scattered cases of measles may be found almost at any time in large towns, but at certain periods of the year the complaint becomes epidemic. These epidemics vary curiously in severity and in the predominance of particular symptoms. One may be signalized by a high percentage of mortality. In another counting may be a prominent and distressing feature. In a third the catarrhal phenomena may be unusually slight; or again, they may be severe out of all proportion to the intensity of the rash. When firtal, measles is so generally through its complications. It rarely kills by the intensity of the general disease. Still, in some cases we must with epidemics in which the disease tends to assume an asthemic type. In these the mortality is high. The fatal cases are marked by early and extreme prostration. The potient seems overwhelmed by the violence of the attack, and dies before any complication has had time to manifest itself. As a rule, one attack protects against a second, but cases where the discase has occurred two and even three times are not un-COURSE OFF.

The contagious principle of mendes is apparently communicated by means of the breath. It is said to be solutile, and to be capable of adhering to dething. According to Meyer, it is easily removed, as the mere airing of clothes is sufficient to disinfect them. Mesors, Braidwood and Vacher have examined the expired air of mendes patients by making them breathe through glass tubes costed in the interior with glycerine. On examination afterwards with the microscope, the glycerine showed in every case numerous sparkling colourless bodies, some spherical, others more clougated with sharpened ends. They were most abundant during the first and second days of the eruption. As a negative test, the breath from healthy children, and children suffering from scarlatina and typhus, was also examined, but without any result.

The infection of measles begins at the very beginning of the estawful stage, and lasts for some time after the rish has faded. Dr. Squire is of opinion that three weeks sught to clopes before the patient can be con-

sadered free from all chance of communicating the disease.

Morbid Anatomy. - The post-morton appearances in cases of death from this complaint are those of the complication to which the fatal termination is owing. In cases where the child has died early from the severity of the disease, little is found except that the blood is dark coloured, deficient in filome, and cougulates imperfectly. There is also hypostatic congestion of the lungs and hypersensia of the mincons membranes and organs generally, with extramation into their substance. The spicer and lymphatic glands are often swellen. Sections of the skin made on the sixth slay of the eruption were examined by Messea. Braidwood and Varher. There was swelling of the corion, and thickening of the rate Malpighii from great problemation. of cells, which extended along the beir and award-ducts into the giands. Sparkling, colouriess, spheroidal, and elengated bodies, similar to those discovered in the breath, were found in the portion of the true skin lying next to the rete, in the lungs, and in the liver. In all these situations these bodies were mixed with other bodies, spindle-shaped, staff-daped, and

esnoe-shaped. They appeared to be albumined in character.

Symptons.—The inculation period of moisles is ten or twelve days. The complaint then begins with the signs of enterth. The parient is thought to have a cold: he sneezes, coughs, and his eyes look watery and red. With this there is fever; often besidene; the appetite is poor; and the child generally feels ill and is languist. The catarrial symptoms increase; the nose may bleed; there is some sommers of throat; and the patient is often hourse, and complains of screness in the chest. If the lever is high, the child may wonder at night and be very restless. Sometimes the attack is ushered in by a convalue fit, and occasionally the convulsions term later on, either before the rish has appeared or afterwards. The skin is generally noist, although the temperature rises to 102" or 100°, or even higher. In a case which came under my own notice at this stage, a boy was seized with diarrhea on July 10th. His temperature on that evening was 102. The next morning it was 103", but the bowels acted five times in the course of the day, and in the creating it had fallen to 101.4". His pulse at that time was 160, and his respirations were 48. On the staning of the 12th the temperature was 1027, and on the morning of the 13th, when the rish appeared, the increasy marked 1057; pulse, 124; respirations, 48. Although pyresis is the rule during the pre-cruptive stage, in exceptional cases the temperature may be portral. I have known that to be the case in two instances. In each of these young children the bodily heat, both morning and evening, for the four days before the superstance of the rask was between 98° and 99°; and when the eruption began the temperature only rose to 101". The mak-was tepical in character, and all the catarrhal symptoms were present.

The digestive organs are usually deranged, partly on account of the fever; partly on account of the mixcons membrane of the stomach sympathizing with the general decongement. The esugue is thickly formed;

there is often counting; and the howels may be relised.

The characteristic eruption appears as a rule on the fearth day, having been preceded by three clear days of estarrh and fever. In mrs cases it is seen on the third day; or, again, it may be delayed until the fifth, or oven longer; but these are exceptions. There is seldom any appreciable subsidence of the fever on the appearance of the rash. Indeed, the opposite is usually the case. Both the fever and the catarrial symptoms seem to be intensified when the rash comes out; and if diarrhon have not been

present before, the bossils generally become loose.

The couption is first seen about the chin, the temples, and the freehead, as slightly elevated spots of a yellowish red colour, which disappear under pressure. Small at first, they soon reach one and a half or two lines in dismeter, and have irregular edges. From the face the such soon spreads to the trank and limbs, and in twenty-four hours is generally found to cover the whole surface of the body and extremities. As it spreads, the localers of neighbouring spets units so as to form crescentic patches. Between these the skin is of normal colour, unless the couption be very profess, in which case, as we often see on the face, the junction of the closely set spots may produce a uniform blash over a considerable extent of surface.

As the rush becomes more completely developed, its colour grows of a deoper red; and if the skin be very most, vesicles with an inflamed base may be seen scattered over the surface. A child with the cruption fully out and the culturital symptoms well marked, presents a very characteristic appearance. His face is somewhat evollen, so that the features appear thich and course. A dull red finsh occupies each check; and the foreboad, month, and also are specified over with the cross-stic patches. The eyes are red; the cyclids congreted; and the upper lip is excorated by the copious flow of thin mness from the nose. Often crusts of duel blood are seen about the nostrils, for opistaxis is a very common symptom. The rush remains at its height for about twenty-four or forty-eight hours, and then begins to fade. The colour changes again to a yellowish red, and in a day or two loss disapparent, learning nothing on the skin but a faint reddish stars, which may last for a few days longer before the normal colour of the integrment is completely restored.

There are varieties in the rash. Sometimes the spots when they first appear are hard, scattered, and protoment. These are the cases which are often mistaken for variola. Sometimes the emption does not completely disappear under pressure, and we then often find little points of extravasation from raptore of small capillaries in the skin. This occurs in cases where there is great hypersenia of the emmesons tissue. It is of no bad angury. A further degree of the same phenomenon is sometimes seen in which the emption grows darker and darker until it has acquired a deep purple that. This is also the consequence of empture of distended cutaneous capillaries. Such a rash does not disappear with pressure, and remains visible for a much longer time than an ordinary emption, fading very

minwis.

The fever and extravely remain at their height until the mich begins to finds. The severity of the catarrial symptoms varies very much in different epidemics and with different patients. Sometimes all the mercous membranes seem to suffer: the threat is sore; the eyes are inflamed; there is deafness from closure of the Eustachian tube, and the inflammation may even spread to the middle ear; vomiting may be distressing, and purging severe; a mild laryugitis may become intensifed and be accompanied by spoom (stridulous laryugitis). All these symptoms are usually greatly releved when the cruption begins to disappear; and if there be no complication sufficiently serious to maintain the pursein, the temperature falls at once to nearly its natural level, and the pulse loses much of its frequency.

The disappearance of the righ is followed by a fine desquaration of

the skin. The peeling differs much from the shedding of the skin which is such a marked symptom in scarlatins. The epithelium falls in fine broalike scales which are often almost invisible to the naked eye, so that this

stage not unfrequently passes quite unnoticed by the attendants.

In an ancomplicated case of measies the classi symptoms are usually mild. The cough is at first hard and backing, and during the eruptice period is often percayonal, with a load barking character. After the cruption has begun to fade, the cough becomes loaser and less frequent; and if proper cure be taken to avoid chills, it soon ceases to be heard. The physical signs about the chest are those of pulmonary entarth. One consequence of the arritation in the lumps set up by the catarrit is solden absent, especially in screenious children. This is enlargement of the broachial glands. If there be much throat affection, there may be a similar swelling of the glands at the angle of the lower jaw and at the sides of the treek.

The urine during the fever is high colored, with abundant urates. It

may contain a trace of alliumen.

In some spideraics cases are seen which present all the characters of the complaint with the one exception that the rash is absent. These are no doubt cases of irregular measies. Cases have been also described in which the rash is present, but the catarrhal symptoms are absent (morbid size catarrho). It is very questionable if these latter are classed rightly

under the bend of messles.

and intermittent.

There is a form of measles which is distinguished by great prostration. Here the complaint assumes from the first an nathenic type. The pulse is small, feelde, and very frequent; the respirations are rapid; the tougue is day, becom, and thickly furred; the temperature of the body is legh, although the extremities feel cold to the touch; and the child is dull and stems stopefied. When the rade comes out, it is imperfectly developed and of a dark red or violet has. The skin is thickly spotted with petechin. Soon the pulse becomes so rapid that it can only be counted with difficulty; the muscles become tremuleus; there is multiring delirium, and the patient dies countose or convulsed. These cases feetunately very rare, simust incuriably prove faish. They are generally accompanied by hemorrhages from the natious membranes as well as into the skin. Epistrais is often obstinate; hamaturia may occur, and after death early messes may be found in various internal organs.

In a healthy child an ordinary attack of measles is a midd discreter with little severity of the general symptoms. The sharpness of the illness appears to be determined to some extent by the constitutional tendencies of the patient. One of the pathological consequences of the specific fever being the active congestion of the nuccous membranes, we might expect that a constitutional state in which there is already a predisposition to derangement of these membranes would determine more serious symptoms than are found in cases where there exists no such predisposition. Children who start in life weighted with a screening disthesis are generally and subjects for menales. It is in these patients that external symptoms assume such prominence, and that epithalmin, stirin, and the other troubles referred to above are so liable to be met with. Even in the middest cases a certain depression follows the subsidence of the fever. The temperature sinks to a subpormal level, and the pulse is very slow

Of all the emptive fevers meades is next to typhoid force, the one most liable to return. Many children have it a second time, often after only a short interval; and in some cases the second attack may occur at so early a period after the first as to constitute a tree relapse. Cases are met with from time to time in which a child sickens with measles, passes through a more or less severe attack, accovers, and after a heief interval of convolusionness sickens with it again—and all this written a month.

Complications.—The complications which may render an attack of measies troublesome or dangerous have been already in part referred to. As a rule, they are exaggerations of ordinary or extraordinary emotions of the complaint, and are determined either by the character of the spotenic.

or by the constitutional peculiarities of the patient.

Convulsions have been already mentioned as occasionally marking the beginning of the discuss. The fits may be repeated arrend times; but when limited to the first day or two of the discreter, although alarming to the friends, are seldem dangerous. Should they be repeated, however, during the eruptive stage, they must be regarded with more anxiety, for they may then prove fatal.

Epistaris, a common symptom and generally insignificant, may become profuse and exhausting. In severe epidemics, where the type of the discase is a low one, this may be of serious moment. In any case it must

tend appreciably to protect the period of convalencence.

Districts is also, as a rule, a symptom of little consequence; but sometimes the mild intestinal catarrh to which it is awing may be converted into a real colitis. The stools are then bloody and glairy, and there is colic

with great tenesums and min in defecation.

Laryngitis is a marked symptom in some spidemics. There is generally a certain amount of bearseness surily in the discuss from participation of the laryngeal nuccus membrane in the general caturit. If this get worse the voice becomes husky and almost extinct, the cough house and "groupy," and the breathing noisy and oppressed. Great alarm is naturally excited by this condition of the patient, but the danger is really alight. When the mash begins to fade, an improvement is noticed in the threat symptoms; and they often disappear quite suddenly when the temperature falls. It must not be forgotten that laryngitis with marked spann may arise quite at the beginning of the attack, and be out of all proportion to the signs of general caturit. In such cases the sustence of meades may not be even suspected until the symptom comes out and discloses the nature of the disorder.

Ophthalmin and offits are less common symptoms. When these occur, it is usually in children of marked aerofulous tendencies. The first may form an obstimate complication, and the second may lead to very serious

consequences. (See Otitis.)

Extension of the bronchial enterth to the smaller tubes is a very grave accident. It is common in babies and young children, and almost invariable proves fatal, for in early life collapse of the lung is easily provoked, and once established quickly terminates the illness. The first indication of danger in these cases is oppression of the breathing, which becomes very rapid. There is lividity of the face, and the commence is haggard and distressed. With the stethoscope we hear abundant fine subcreptuant thoughns over both sides of the chest. When these symptoms are present, very active measures must be taken to avert a fatal issue to the complicant.

In children who have passed the age of twelve months enturned precure month is a more frequent complication than the preceding. If, in any case, on the fading of the mash the temperature undergoes little diminution, we may expect estawhal inflammation of the lungs to be present. In such a case the child, materal of becoming better and more lively as the cruption disappears, some to be waster and less well than before. His face, the swelling lawing subsided, is seen to be pinched and haggard looking; there is laudity about the lips; the nares act in inspiration, and the breathing is quick and labored. A thermometer in the axilla marks about 102°, schiom higher. The patient is thirsty, but will take little food. He shows no interest in his toys, but often his picking at his lips and fingers, indifferent to everything but his own uncomfortable sensations. Examination of the chest reveals all the signs of scate external provincing.

This complication may also come on at an earlier stage, when the eruption is beginning to appear. The development of the rish is then returded; or the exanthem may even retrocede with great aggmention of the general symptoms. Cutarrial pressurence is fully described in smother part of the volume, but it may be mentioned in this pince that exterrhal inflammation complicating mendes often runs a subscute course, and persists long after all signs of the primary complicit have disappeared. It may end in death, in complete recovery, or may become a chronic lesion forming one of the

varieties of pulmonary philipsis.

Sepecies.—The sequelse of measies are constituted in part by the abovementioned complications, which, like catastrial pneumonia, may become chronic and give rise to trouble and anxiety. Chronic laryngitis' and bronchitis are common sequences. Enlarged bronchial glands often remain for a considerable time relies of the disease which has pussed away. Also, it may again be repeated that in children of serofulous tendencies an attack of measies may light up the cachesia, and give rise to any or all of the troubles which are characteristic of that constitutional state. Even children who are free from this unfortunate predisposition may not swape subset from the attack. A condition of the system is often left which appears to favour the occurrence of secondary disease; and whooping-cough, cross, gangence of the month and valva may occur at such a short interval ofter the attack that they cannot but be looked upon as direct sequelse of the illness.

Acute inherentees requires special mention as an undoubted and fatal consequence of assades. Meades, indeed, is followed by true tabercular disease with such frequency that in every case where we are called to a child who has been left weak and feverish after a recent attack of the exsuthmentous disorder, we may expect him to be the subject either of

catarrial posturionia or of sents tuberrulosis.

Dispense.—Before the stage of emption measles is not easy to detect. A severe celd in the child is often accompanied by fever, and there is nothing in the catarrial symptoms of measles which can be considered possiliar to that complaint. If such symptoms occur at a time when we know an epidemic to be raging, the probabilities are no doubt strongly as faceur of an attack of this disorder: but in the opposite case, if we cannot exertain that the child has been exposed to contagion, it is vice to writtedow supressing an opinion. Still, we should never forget in any case of high temperature in a child with signs of general enturch, that these me

In all cases of liverseness left after meetier the vocal condicional, if possible, is expected with the large-coope. The supposed large-give will be sometimes found to be ready asserted with real-post of the addition species, which full to approximate the costs. This heat condition may be present although the signs of general asserts are not presentable. In such cases we should watch the child university for any symptoms indicative or inforcedmic.

the early symptoms of mendes; and we should inquire as to the existence

of the disease in the neighbourhood.

The presence of the catarrial phenomena will enable us to exclude nearlatina should the combination of sore threat and high temperature inveled us to suspect the caset of that disorder. If larvugitis with strider and spasm be an early symptom, the persistence of high fever after the spasmodic attack is at an end will suggest that these manifestations may be symptomatic of some latent februic disserter, and we shall remember that

menales is sometimes ushered in by layingeal troubles.

When the rush appears we shall be less hister to fall into error. The crescentic, slightly elevated patches with the skin between them of a bealthy test, combined with coryra and cough, are very characteristic. If the cruption come out first as hardish isolated papules, small-pox may be suspected, and indeed this is a mistake which is often made. But the papules have not the hard shotty feeling peculiar to the variolous eraption; there is no history of pain in the back; and romiting, if it have occurred, is much less severe than the comiting of the pre-cruptive period of small-pox. Moreover, in variols the temperature fails notably on the appearance of the cosh, while in measles, if any change occur at all in the fever, it is in the opposite direction; and the catarrial symptoms become aggravated. Doubt is only permissible at the vary beginning of the cruptive stage; for on the second day the reals of small-pox has completely changed its character on the free of the patient, the papules having become converted into vesicles.

The rush of rescens may bear a close resemblance to that of measles, but in the former complaint there is no extarria, and the temperature is normal or only slightly elevated. Between epidemic rescens (or rottlebs) and measles the difficulty of distinguishing is often very great. This subject is referred to in the chapter treating of the former disorder (see page 30). I have also known the early signs on the skin of an acute peneral eczema to present the closest possible resemblance to measles. But an exauthous should sever be judged of by the rush alone. In every case we should search for confirmatory symptoms, and impairs us to the temperature and the initiatory phenomena of the illness. In measles we examine the eyes for injection, the threat for reduces, and ask about cough, however see that the discuss is measles, however typical the rash may appear.

The stains left on the skin as the rubectons eruption dies supp have been compared to the mottling of applaintic rescala, but the history and course of the illness are so different in the two cases that hesitation is im-

possible.

Propositis —The percentage of mortality in measles is small. Still, it is much higher in some epidemics than it is in others; and, therefore, in estimating the chances of a patient's recovery we must take into account the character of the epidemic. Another consideration is the provious state of health, especially the constitutional tendencies of the child. Unless the case be one of malignant measles, or the child have been percently in a state of great weakness, there is every hope of preserving life if ordinary care be exercised in nursing the patient through his illness. But it is less easy to great injury to the health from the dangerous sequels of the disease. In spite of all we can do, a child of strong serotulous predisposition may be left greatly the worse for the strong serotulous predisposition may be left greatly the worse for the strong serotulous larges by already the sent of caseous convolidation, it will be difficult

indeed to prevent his phthisical tendencies from receiving a distinct

inmulse.

In children under two or three years of age beenchitis is a common complication. Here the child's previous health is a point of very great importance. One danger in these cases is the occurrence of colleges of the long, and this is predisposed to by the presence of rickets, or by general weakness of the petient. If the child be the subject of marked rickets, and bronchitis supervene, his chances of recovery are small. Another danger is the tembercy of the bronchial inflammation to spend into the finer bronchial tubes and air-resides, and give rise to catarrial presumenta. The occurrence of this accident greatly increases the gravity of the case; but if the child be a healthy subject, and the epidemic be a mild one, the chances are in favour of recovery, for in measies entairbal precursona tends to run a subscute course. If, however, the child be weakly, or the case occur in the midst of an epidemic of unusual severity, we should speak very quardedly of his hopes of escape.

Frontscat. - In the early stage of measles the treatment is that of a severe cold on the chest. The child must be kept in bed, you upon a dirt of milk and broth with dry toest, and take for medicine a saline with armounstimulating experiorants. While the cough is hard and the chest tight, the stimulating expectorants, such as ammonia, squill, and acuega, should on no account be made use of, as they increase the tightness of the chest and make secretion more difficult than before. If romiting be distressing, an emetic may be given to relieve the stomach of unbuiltly secretions. Mustard, or sulplints of copper ter. I to gr. I avery ten minutes), is to be preferred for this purpose, as ipseneusnlin has a very irritating effect upon the bowels of some shill from. If there be dimerlass, a small dose of eastercal or of rimbarb and soda will be of service at the beginning of the attack; but the aperical should not be repeated, for in measies the bowels are very assorptible to the artica of purgatives. If the diarrhera continue, a mixture of aromatic chalk powder and rhubarb, five grains of each, may be given to a child three years of age every night for three nights; or he may take oxide of zine with glycerine (two grains three times a day), and either of these will usually arrest the purging. Still a moderate looseness should not be interfered with. It is better not to employ astringest remedies unloss the stools are very natory, and threaten by their number to reduce the pulicut's strength,

The general management of the child must be conducted according to
the rules already had down for the nursing of febrile complaints (see Introduction). In cases of measles special care should be taken to avoid draughts
while insuring free ventilation of the room. A strong light harts the
reddened eyes, so care should be taken to keep the room in a half light,
without making it actually dark. Due attention must be paid to cleanly
ness. It is not necessary in cases of measles to keep the citild dirty. The
skin should be cleaned every morning: using tepid water, and being careful to wash and dry separately each part of the body, so that the whole
surface may not be exposed at one time. The patient may be allowed to
take fluid often, but he must be prevented from drinking large quantities
at once. The best drink is pure filtered water, and if a small rup or glass
be used, the child will be satisfied if allowed to drain it to the bottom.

The condition of the throat usually requires little treatment. A strip of lint wrong out of cold water may be applied closely round the nack, and be covered with offed silk and flame! This can be re-wetted as often as is necessary. The same application is smalld if there be much inflammation of the larynx; and if spasm occur with stridnlous breathing, the throat may be forsented by applying below the chin a sponge dipped in

water-hot, but not hot enough to scald.

A single convulsion does not require treatment; but if the fits are repeated, the child should be placed for a few minutes in a warm both and then be returned to his bed. A hot both is useful if capillary bronchitis or catarrhal postunous occur early, and interfers with the development of the rask. If they occur later during the subsidence of the eruption, the child's back should be dry-cupped, or be covered with a large positive made of one part of mustard to five or six parts of lineard neal. This can be kept in position for eight or ten hours, and afterwards the front of the chest can be position for eight or ten hours, and afterwards the front of the chest can be position in the same way. In cases where the danger is great, the dry cups are to be preferred to the more slowly acting positive; and I believe life may be often saved by the timely use of this energetic measure.

Stimulants are not required in ordinary cases of measles, but when the patient is of weakly habit of body or of distinct scrofulous type, or when he is suffering from an unusually severe attack of the disease, it may be necessary to support the strength by alcohol. The brandy-and-egg mixture of the British Pharmacoponia is very useful for this purpose, and may be given in such dows as the child's age and condition require. Children -even very young children-who are weakly or prostrated by illness respond well to atimulants, and can take them in considerable quantities with great advantage. I have often seen an infant of eight or nine months of age groully benefited by a tempoonful of brandy-and-age maxture given every hour Of this quantity a third part is pure brandy. If without the occurrence of any severe complication the patient seems to be getting into a typhoid state, with dry tongue and small rapid pulse, stimulants are urgently needed. Also, the presence of broughitis or purumonia will demand a recourse to the same remedy, or the child may sink and die with startling anddenness.

Food must also be given with care and judgment, taking pure not to everload the stomach, but to proportion duly the nonrishment, both in quantity and quality, to the age and strength of the child. In all cases of weakness the milk abould be diffuted with half or a third part of barky water, so as to insure a proper division of the curd. In addition, it may be guarded by fifteen or twenty drops of the succharated solution of line to prevent its turning acid upon the eternach. This must be given in small quantities at regular intervals. Strong best-ten, or best-energy scale in the house, is also very useful when the strength is failing, but it must be given in very small doses at sufficient intervals. Brandy can be

added if necessary.

When the rash begins to fade and the temperature falls, the child, if old enough, may take pounded meat, the rolk of an egg lightly beiled, and

a little light pudding.

The chronic sequels must be treated according to the rules hid down in such cases, and the reader is referred to the chapters treating of these subjects. It may only be added that quinine is invariably required at the end of an attack of mersles; and bracing sensor is very beneficial in histening the return of health and strength. This is of especial importance in the case of scrutulous children, who will also require cod-liver oil as soon as their stomacks can bear it.

CHAPTER II.

EPIDEMIC ROSEOLA.

Errosino roscela, eften called retheln or German measles, is a mild infectious complaint which bears so close a resemblance to measles that it is in all probability frequently confounded with it. The two diseases are, however, not the same, for retheln does not protect against measles, and is itself often seen to occur in a child who has been lately the subject of that disorder. The complaint is also at always a mild one, and has no compli-

estions or sequels.

Symptoms. -The stage of invulation is said to last a week. When the disease begins, the child is seen to be about and to look poorly. He is slightly feverish and, if old enough, complains of headsche, With this those are the usual accomponiments of thirst and went of appetite; and sometimes a pain in the back has been complained of-violent in character like the back-ache of small-pox. The pre-cruptive stage often lasts only a four hours, or, indeed, may be even absent. Perhaps its average duration may be taken at twenty-four hours. The eruption then comes out on the cheeks, and sides of the nose, as dusky-red slightly elevated paperies, the colour of which disappears on pressure. The wrists and ankles are attacked almost us early as the face; and from these points the rash quickly speeds to the rost of the body and limbs. On the checks the rush is more papelar than elsewhere. It differs from the croption of measies in that the spots do not group themselves in creaceutic patches; but rescaldes it in the tendency of the rash to become confluent in places. Thus a large patch of uniform redness is often seen on the checks; and sometimes we find the same confinence of such on the unists and forearms, the legs and the ankles. The emption is attended with a good deal of irritation, and when it subsoles, is followed by a slight fine desquaration.

The general symptoms during this stage are triffing. The fever may persist during the first day or two, but often subsides seen after the appearance of the rish. The conjunction may be injected, but there is selden coyan; and if cough be present, it is insignificant. One almost constant symptom is seen threat. This generally comes on with the risk, and, on inspection, the fraces are found to be the sent of diffused reduces; and the totals may be inflamed and swollen. The secondary sound the totals may be inflamed and swollen. The secondary soun threat is a characteristic symptom of rotheln. It occurs between the third and seconds day—usually, according to Dr. Tonge-Smith, on the fourth or fifth—and is accompanied by great pain and much swelling. In the second cases the voice is altered, articulation and deglatition are distressing, and there is much secretion of sticky mucas. The temperature at this time may reach 103° or 104°; still even when the threat symptoms are warst there is no prostration or even my feeling of general allasse. Sometimes the glands of the neck are enlarged and tender, and in some spi-

demirs the post-cervical glands have been noticed to be swellen. The exillery, inquired glands, etc., mer be also affected. The duration of the

eruptive stage is three or four days.

An attack of rothola is then, as a rule, a very insignificant matter. The difficulty is to distinguish it from measles, which it so much rescribles. The two chief points of distinction are the shorter period of the eruptive stage in rothels, and the non-crescentic arrangement of the rish. The milder character of the caterri will hardly serve as a distinguishing mark, for sometimes in measles the cough and corres cause little inconvenience to the patient. Another point is the lower temperature. Sometimes in rotheir there seems to be sengely any forer at all; and when present, the pyrexia generally subsides on the second day. In spite of these points of contrast between the two complaints, we must often besitate to express a positive opinion upon a particular case. The absence of any increase of ferer when the emption coases out may afford a ampleion that the case is not one of true mandes, but we can seldom speak with certainty upon the first day of the righ. On the second or third day, however, if we find the general symptoms still retain, their trifling character, and if the fever subsides before the rash has begun to fade, we may conclude the case to be one of roticis. In doubtful cases the more or less general glandular enlargement, especially the swelling of the cervical and subsecipital glands, is a very suspicious symptom; and the occurrence of secondary sure throat with no actual sense of illness is very suggestive of ratheln.

The disorder has been described as a mild one, but it as right to say that some authorities held that it may assume a much more severe character. Dr. Cleralle, from careful observation of two epidemics, which presented all the characters of meastes and occurred in succession in the same district within the same year, concluded that the second of these epidemics was rotalle although the symptoms were severy, and the laryugeal phenomens especially well marked. He founded this spinion upon the shorter period of incubation during the second epidemic, and upon the fact that out of thirty cases in which absolutely trustworthy histories could be obtained, twenty-two had had meastes before, and ten of these under his own immediate observation within the year. Still, we may remember with regard to this latter point that meastes, although as a rule it protects the subject for the future against a similar attack, is perhaps of all the contagious fevers the one most liable to recur. A second or even a third attack in the same individual is far from uncommon, and constinct

the interval between two such attacks is curiously short.

Treeboost.—The patient must be confined to one room while the fever lasts, and care must be taken that he is not overfed. No medicine is required.

CHAPTER III.

SCARLET PEYER.

Scanner fover (or scarlatina) is, like measles, one of the commoner infections fevers of childhood. It usually occurs in epidemics which vary
greatly in severity. One attack, in the large majority of cases, protects
against a second, for it is a discuse which very rarely occurs twice in the
same person. A second attack may, however, occur. Some time ago I
sow a little girl, aged seven years, who had a significant history of fever
followed by desquarantion and dropsy, which had attacked her when she
was in perfect health two years before. The child was a patient in the
East London Children's Hospital, suffering from general anyloid discuss
dependent upon spiral caries which had followed the illness referred to
While she was in the hospital the girl again contracted scartatina, and was
sent away to the Fever Hospital, where she died.

Sometimes the discuse appears in an abortive form in persons who are already protected by a previous attack. In every epidemic of scarlation it is common to find cases of anomalous sore throat occurring in protected persons exposed to the infection. Such persons may communicate the

perfect disease to others who are not perfected.

Consisten.—The fewer is of a highly infectious nature, and is readily communicable from one individual to mother. Sporadic cases are sometimes met with, but the (Bases generally occurs in epidemics. The infectious principle is probably not at all volatile, for articles of elothing flanned, etc., have been known to retain their poisonous properties for long periods of time. It is a debated question whether the disease ever has a spontaneous origin. Some authorities hold that it may be generated de some by compacts and ill-ventilated drains. Different epidemics has different degrees of severity; but apart from the special type of force president, this intensity of the disease is dependent more upon the constitutional state and sanstary surroundings of the recepient than upon the severity of the disease in the person from whom the infection is corrected. Scrofulous children, and those who are ill cared for, or are exposed for long periods to an impure atmosphere, are likely to take the disease badly.

During the first few skeps of the illness the patient is less dangerous as a source of infection than he afterwards becomes. The time of desquanation is probably the period at which the complaint is most likely to be carried nearly, for the particles of epithelium thrown off must be highly contagions, and the patient's power of communicating the disease does not

coase until the peeling of the skin is at an end.

Scarlating is seen less frequently than menales during the first twelve mentles of life; but between the first and second years the disease is a common one, and, according to the researches of Dr. Murchison, 64 per cont. of the cases occur before the completion of the fifth year. After the tenth year the disease again becomes less frequent, although it may occur

during adult life or even in extreme old age.

Morbid discreeg.—After death from searlation we usually find evideace of the special complications which have determined the fatal issue. In addition the blood congulates imperfectly, as a rule, although pulo

fibrinous clots may be found in the right ventricle.

The parts especially prone to suffer are the gastro-intestinal nursus membrane and the glandular system. In fatal cases inflammatory swelling is found in the impeliatic glands of the neck; also in the follicles at the base of the toughs, and in these of the planyax, tousils, and laryax. In the intestine the solitary glands and those of Peyer's patches are often enlarged, reddened, and softened. There may be also enlargement and softening of the spleen hear and panereas. In all these organs, according to Dr. Klein, there are changes in the small blood-ressels. A bysline thickening is noticed in the arterioles, with a profiferation of the cells of the endothelium and of the model in the muscular coat, together with an accumulation of lymphed cells in the tissues around. In the gastro-intestinal mucous membrane there is hypersemin of the subspiticibility, and great problemation of cells which distend and observed the gastro-intestinal mucous membrane there is hypersemin of the subspiticibility, and great problemation of cells which distend and observed the gastro-intestinal mucous membrane cases of these tubules may be detected in the matters ejected from the stounch.

The entineous affection is not a more hypersenia. It is also an exudation into the rete mucosum. The cells in this estration are proliferated and swollen, and the swent-glands may be staffed and distended by their increased cellular contents. Scrons educions with migration of lenewytes may also occur. The lymphatic glands, especially those of the nock, are enlarged; the lymphatic cells disoppear, and in places large giant cells be-

come developed containing many muclei.

The tailing presents the characters of neuto Bright's disease. The schole organ is congressed, and important changes are noticed in the glomcruli, the small arteries, and the convoluted takes. According to Dr. Klein, these changes take place very early, so that in the first week of the disease proliferation of the nuclei in the Malpighian tufts and in the nuncular cost of the arteries can be detected, as well as ligaline degeneration of the intima. At the cases time there is bysiline thickening of the walls of the Malpighian capillaries, and cloudy weeking of the spithelmm in some of the convoluted tubes. At a later stage the cloudiness and swelling of the tabal spithelium increases, and faity degeneration takes place; infiltration of lymphoid cells occurs into the interstitial tissue around the tubules; and the tubules themselves are filled with hyaline casts.

In cases of aremia the blood is sometimes found to contain an enormous excess of area. In a case reported by M. D'Espine of Genera, in which renesection was employed, the blood was found to contain 3.3 parts of area per thousand, or about twelve times the normal quantity. The potash salts, also, were increased to three times the natural proportios, and of this two-thirds was contained in the seriou, and not, as in healthy blood, in the ced corpuscles. From the experiments of Feltz and Bitter, and others, it appears probable that the symptoms of arrange possessing are due not to the retained area, but to the excess of potash salts in the blood.

Symptoms.—After exposure to infection a period of incubation procedes the actual outbreak of the forer. This stage is of very variable duration. It may last only twenty-four hours, or be prolonged to a week for more. Probably six slays may be taken as the ordinary duration of this period. Different cases of scarlatina vary so much in severity and in the violence of special symptoms that it will be convenient to divide the discuss into two chief forms: The common mild form and the malignant form.

Afterwards the complications and sequels will be described.

In the common form the invasion of the disease is abrupt. It begins with a chill; the child complains of sore throat, and generally vomits, Sometimes there are necessus syneptons, and in exceptional cases the Assess may be introduced by a convulsion or a state resembling comm. The tongue is generally farred at the back, red at the tip and edges; the appetite is lost, and there is thirst. The skin is hot, and the pulse rises to 130°, 140°, or even higher. The rish sometimes appears within a few hours of these early symptoms; occasionally it is shelf one of the early pleanomena; and again in ture cases it may be delayed for three or four days. or, it is mid, oven for a week. As a rule it is noticed within twenty-four hours of the beginning of the disease. The temperature roses progressively through the invesion stage until the mair appears. The pyrexia is not, however, exermise. In the case of the little girl, before referred to, who was taken with scarlating while in the hospital, her temperature had always been normal but one evening it was noticed to be 100.2". The next morning it was 101.2", and the child vomited several times. Toward the evening the rash appeared, and the mercury reached 160°. In another case —a little boy agod eight nonths, who was teething—the temperature for asveral days had been 180°. One morning it rose to 102.2°; he vomited, and in a few hours the rash appeared. To the hand, perhaps, the skin gives the impression of being lotter than it actually is, for the heat is often accompanied by a peculiar dryness, which gives a burning character to it like that of pasumonia. Tested by the thermometer, this temperature will be rarely found to exceed 105".

With the appearance of the rish the immion stage romes to an end and the creptus stope begins. The rash first appears an scarlet points, not elevated above the surface. These are closely set, and their borders, which are paler than the centre, mite so no to produce, when fully deteloped, the appearance of a muliorm peak ground dotted thickly over with scarlet points. The mah mirely affects the face to the mine degree that it does the rest of the body, and differs in this respect from the exuption of measles. Usually the region about the mouth is comparatively free, and contrasts by its palaness with the deep red that of acighbouring parts. The colour of the rish disappears on pressure of the finger. When the eruption is confluent, as it is in a typical case, no intersuming healthy skin can be seen. Often, however, the aruption is not conflorat. The pencia are then more or less isolated, and may be separated by spaces in which the skin has the normal colour. The rash may be confinent in some places. not in others. On the cheeks, neck, chest, abdomer, and inner aspect of the arms and thighs, coalescence of the neighbouring puncts is usually recordete. In other parts the spots may be more or less included. Sometimes the graption is everywhere discrete. The puncts are then usually larger; and if at the same time the temperature is only slightly elevated and the sore throat insignificant, great doubt may be exteriored as to the nature of the disease; especially as when thus discrete the spots are often

a little elevated. These cases know been mistaken for musales.

Again, the celeur of the rash may sary. It may be very pule, so as to be only discovered by careful commission; or it may be dusky and purple. Often it is more pink than souriet. Sometimes it is limited to cerams parts of the body, such as the sides of the neck, the chest, or abdomes, and cannot be detected upon the limbs. It is usually said to begin about the root and sides of the neck and on the class; but if so, these parts precede the rest of the body by a very short interval, and the rash becomes governly very quickly. It is at its height on the third or fourth day of the illness. There is then often a good deal of irritation of the skin, and some subcutaneous colours is present, which makes the fingers start and clumsy-looking. The rest may be accompanied by miliaria about the neck and class; the skin is often rough from calargement of the subcutaneous popills (cutis anserins); and petechne are not unfrequently present. These small homographic spots do not necessarily indicate any special severity in the attack. Sometimes also resides or even popules may be noticed. When the crupton is at its beight, a line drawn upon the roblemed surface by the finger-mail remains visible as a whole streak for about a minute. This sign has been considered to be pathogomenouse. The rash begins to tale on or after the lifth day of the illness, and has

neadly completely disappeared by the tenth.

During the eruptive stage the symptoms of the invasion period increase in intensity. The tongue cleans and becomes deep red with swotten papills, so as to present the well-known strawberry appearance. The child is very thirsty, but in the milder cases has a fair appetite. Veniting is selfon repeated after the first day; but in exceptional cases this symptom is an obstructe and distressing one, adding greatly to the gravity of the case. If severe, it may reduce the temperature. The severess of threat notally increases during the cruptive stage; and examination of the fances shows a bright redness of the soft pulste, avula, torsile, pillars of the fauces, and often of the lasek of the planyers. Sometimes these parisare also swollen from orderns, so that the availa is broad and the torsila nearly meet in the middle line. There is also in most cases excess of tonsillitic secretion and yellow pulpy matter may be seen collected at the mouths of the follicular recesses, or even conting the surface in a uniform. layer. If the matter do not escape, it may form an abscess in the fouril, as in common quinsy. In the more severe cases the tongue loses its moist appearance and the nincous membrane of the mouth, and throat generofly, looks dry and shining. Unless in the worst cases, alcognition does not occur intil the disease is subsiding. Sometimes at an early period the discuss is complicated with diphtheria. If the threat affection is severe, there is much pain and tenderness in swallowing; the voice is usual in amality; and the glands of the neck become cularged and tender. The inflammation may extend from them into the connective tissue around, and end eventually in supportation. In an ordinary case the throat improves as the cruption fades; but the topsils and the lemphatic glands may remain enlarged, although painless, for some time after the inflammation has ambaided.

The degree of perexis as a rule is moderate. The temperature relation uses above 100°, although in exceptional cases it may reach a higher electrics. Unless it be maintained by the presence of a februle complication, the temperature tends to subside when the rush begans to fade; and a crisis then esually occurs, the heat of the body being normal for twenty-fear hours. Should this crisis not occur, the pyretia may be prolonged for several days. Even in a mild uncomplicated case I have known the temperature to ramain elevated two degrees above the normal level for two-fearings. As long as the fewer continuous, the pulse is as frequent as at the beginning, and sharkens when the temperature falls. It often reaches 160, and this frequency is not to be taken as a sign of danger. So, too, deli-

rism may be present, and if slight and scenning only at night, is not of serious import. The child often complains of headache and of sching pain about the limbs

The urine is scratty and high coloured. It may contain excess of bile pigment, and there is often a sediment of lithates or of free uric scid. Arcording to Dr. Gee, the chlorides are sensibly seduced in quantity, and the phosphoric scid undergoes a decided reduction. The urea is not neces-

sanly increased.

The despurestive stage begins a few days after the rush has foliot. The easet period at which it can be first noticed is very variable. The first sign of pooling may be seen while the akin is still tinted with the remains of the eruption and before the pyrenia has subsided; or it may be delayed for some days or even weeks after the mak has disappeared. It negally occurs early in proportion to the intensity of the sruption, and if miliaria has been present, is often early and professe. In the slighter cases it may be long defined, and Dr. Page states that after a mild attack he has known desquarration to be postposed for five weeks. The spithelium at first looks dry and may be finely wrinkled. Then, on the neck, upper part of the chest, and front of the shoulders, the skin begons to fall in the bran-like aculos. Over those parts whose the cuticle is thin and delicate the desponention is very fine. Where the skin is thicker the partieles thrown off are larger, and in some places, such as the hands and feet. large areas of spitheliann may be cast off undersken. On close inspection of the pecling surface the caticle will be seen to be mised in the form of an empty reacle. The cover of this elevation fails, leaving a minute circle, which gradually extends itself, until its circumference meets other circles widening in the same way. If the crown of the vesicle does not break off. the equivation of the epithelium may go on, at the periphery until, by the evolutioner of neighbouring centres of desquamation, large tracts of skin the thrown off.

The process may be over in ben days or a fortnight, or may be prolonged for weeks. It often lingers long about the fingers and toes. A secondary desparation is even said to occur in some cases, and the preling undergoes a species of relapse. Until the last fake of spithsham has been cost off the patient cannot be said to be completely free from in-

fection.

In this sings the pulse is at first often slower than natural, and may interest. The temperature, also, after the consulton of the pyrania, remains subscenal for some days.

In subject a original the secrety of the disease is shown either by violence of nervous phenomena which prove rapidly fafal; or by the early appearance and intensity of the throat affection, which causes death in the

first or second week of the illness.

In the first form the disease from the beginning may show the utmost violence. The comiting is repeated and distressing; the child is agitated and delinious or convalsed; the temperature rises to 167° or 108°; the breathing is quick and shallow; the pulse is rapid. After some hours or days, according to the riskence of the symptoms, the patient sinks into a stupefied condition with haggard, dusky face, cold extremities, a feeble, expel pulse, and a most skin. He comits frequently or may be violently purged and diss countoes or in convalsions. In the weest cases the patient seams literally overwhelmed by the intensity of the favor prison, and disabefore the rush appears or the sore throat has assumed any special prominence. Thus, a child may be found a few hours after his first attach

collapsed or unconscious, vomiting increasually, and passing frequent, thin, watery stocks. The threat presents a dusky redness; the pulse is very mpid and feeble; and the thermometer in the rectors marks 102° or 103°. In a few bours the temperature rases to 105° or 105°; convulsous come on, and the child dies. In other cases he lingers longer, and may appear to rally for a time; but the depression continues, the stapes returns, and

death occurs by the end of the week. When the disease assumes a malignant form from enaggeration of the throat affection, the course of the disease for the first few days prescribe nothing abnormal; but on the fifth or sixth day the fauces became excessively tender, and deglutition is very difficult and pointal. The lymphatic glands at the angle of the jaw and the connective tissue around them are refused and ewollen. On examination of the throat the mucous membrans is seen to be of a deep red or dark purple colour, and patches of ashy gray cambation matter are dotted over the surface of the soft palate, uvula and tousels. In the leaf asses obseration takes place in these spots, and sprewling causes wide destruction of tissue. The face is often heal and haggard; the pulse is quick, feeble, and flottering; there are services on the teeth and lips; the tongue is dry and brown; the fotor of the lowath is extreme; and an offensive purelent discharge escapes from the nose. At the same time the neck swells and feels lunway to the touch; the slaw malts away in places; and thin, purulent matter, with shrede and lumps of slongly connective tissue, are discharged through the openings. sloughing of the subsulaneous tissue of the neck is often accompanied by other serious symptoms. Homorrhage may take place from the large vessels; ordered of the glottis may occur; the patient may fall into a typhoid state or die from pyzemia. In one way or another such cases usually terminate fatally.

When the threat affection assumes a malignant form the prostration is generally marked, and the patient lies in a drowsy state, although he seems intelligent enough when roused. The temperature is not excessively elevated, soldon rising above 103°; but the pulse is very rapid and feelds. It is important to know that the swelling of the cervical ghands is not always in proportion to the severity of the threat complication, and farmshes no ground upon which to establish a prognosis. Deep-scated slonghing and fatal homography may occur in cases where the external glambs are only moderately enlarged. If the threat effection is severe from the first, the appearance of the rish may be delayed for several days; and it may consout in a potelly manner, being most marked in parts where the skin is especially thin and delicate, as in the folds of the arm-pits and grouns.

Sametimes we find the above two forms of undignant fever combined. The nervous symptoms are in excess, and there is also serious ulceration of the fances and destruction of tissue. Convulsions occurring from any cause during the exceptive period are of very serious import, and generally end fatally whether the throat symptoms are mild or severe.

Complications and Separks.—The intercurrent discribers which are liable to occur during or after an attack of scarlet fever may be looked upon as complications or sequely, according as to whether or not the discribe is considered at an end when the temperature returns to a normal level.

Most of them arise during the second week of the illness, although some may occur earlier. They will be described in the order of their occurrence.

During the first need the fever may be complicated by diphtheria, disrefers, and corpus. The abstrative throat affection, which by many writers

is considered as a complication, has been described as a phase of the malignant form of the fever.

Diphtheris may be an early complication of scarlet lever, and may spread to the nose and laryns. It often comes on during the first week of the diness, but may occur later and at a time when the patient is supposed to be rapidly approaching convalencence. It generally proves fatal.

Coryen of a mild character occurring in the course of the first week in not a symptom of unfavourable ones; but if it persist into the second week, it becomes more serious. In such cases the enturis may spread along the Enstachan tube into the tympanous and set up office. If in any case the mand discharge becomes found, it suggests the pressure of diphtheria.

Distribuse is sometimes an early complication. It usually ceases after a day or two, but may prove so severe us to endanger the life of the patient. According to Henoch it is preceded by swelling of the Pysrum and solutary glassis. Sometimes as the rush fades the diarrhom, which had at first appeared of little importance, passes into a true entero-colitis. The temperature which had fallen rises again; there is nauses and often consisting; the belly is swellen and perhaps tender; and the child complains much of abduminal pain. The tengue, dry and hot, is furred on the domen, red at the tip and edges. The boseds are loose, and the stools contain much food partially directed, maked up with mucus and sometimes with blood. The shild looks excessively ill and rapidly loose flosh. He may die from the acute nitack, or the complication may pass into a chronic stage.

In the sexual used brenchitis and pneumonia, rheumatism, and serous

inflammations may be seen.

Broachitis and presentoria, which are common in messles, are comparatively rure complications of scarlatina. It is much more frequent to find inflammations of the seroes membranes, especially of the pleasa and pericardium; and these are often associated with symptoms indistinguishable

from those of the matien.

Scarlatinous rhoungatism may occur during the second week or beginning. of the third, and is aften met with as a complication or sequel of the lever. Whether the disease is to be looked upon as a true rheumatism quite independent of the scariation, or as an arthritis resulting from septicamia. or as a further manifestation of the searlet fever poison which may fisten upon the pants us it may fasten upon the kidners or the throat, is still a matter of discussion. The rheumatic attack certainly follows the ordinary course of that discuse; it frequently affects the serous membranes in and around the heart; and the joint inflammation subnifes, as a rule, after a they or two although in exceptional cases it may end in supportation. This, may, however, occur in cases where there is no suspicion of scarlet fever. Endocarditis is as common as pericaeditis, and heart disease in the child often dates from an attack of scarlating. Plearier and pericarditia sometimes come on in the third week instead of the second, and may occur in eases where joint pains are not complained of. They may then be a symptesu of Bright's disease; but pericarditis from this cause is not very common in the child as a sequel of scarlet fewer. If pleurisy occur the offusion very rapidly becomes purulent.

In the third need the patient is especially liable to kidney misrisief.
At this time, too, or shortly afterwards, chitis may occur, and gangrane

and abscesses may make their appearance.

The urine should be examined daily throughout the illness for albumen. This may be found at any time from the second to the twenty-first dayIt is, however, in the course of the third week that it is especially liable to be not with.

All aminum does not bear any relation to severity of attack. It may be present in mild cases and absent in severe ones. By itself it does not indicate serious renal mischief, and if small in quantity does not affect the

DESCRIPTION OF

If the albuminum is due to anything more than a simple conjection of the knineys, which is of little consequence, the urine soon shows signs of the presence of nephritis. Its quantity is reduced: its colour is snoky from the presence of blood, or even deep red if the hamorrhage is copions; boiling throws down a copious precipitate of albumen; and renal epithelism, blood-disks, and casts, granulur and epithelisi, are discovered by the microscope. At the same time or shortly afterwards the face is puls or purify-looking; the cyclids are stiff and swellen; and more or less

orderns is noticed about the legs and sukles.

The beginning of the kidney complication is generally announced by compling, isosiache, loss of appetite, a dry skin, a pullid complexion, an irregular rulse, and a rise in the temperature. The temperature is not very high, seldem exceeding 101°; and the remiting is not often repeated, al-though sensetimes it becomes a distressing symptom. The ordern varies in amount. Sometimes it is little more than a puffiness of the skin. In other cases the swelling may be general and severe, so as completely to alter the natural expression of the face, and greatly distend the limbs and lower part of the back. At the same time effection may take place into the serous ravities, the lungs, and even the glottis. If these effusions are midand copious, great lividity and dyspeaus may ensue, and death may take place with startling rapidity. The most violent attacks of dyspeau may be induced by interstitial orderns of the lungs. The patient is found gasping for breath, with a laggard, livid face. His eyes are staring and congested, his lips blue, and his mile purple. His pulse is weak and rapid and has heart's action feeble and flattering. On examination of the elest few physical signs are to be discovered. The thought are seanty and scattered, for very little fleid, if any, exades into the air-passages and alweeli.

In a certain proportion of cases are nie symptons may occur. The child is, perhaps, valently convulsed several times, and may lapse into a state of come; or he may be seized with benchicke of a very distressing character. Fortunately these symptoms usually pass off under the influence of judicious treatment. It is exceptional for a child to die of souristinous asphritis. The occurrence of the renal complication appears to be dependent in a preat necessary upon the character of the epidemic; for while in sorge it is a common symptom, in others it is almost entirely obsent. The popular impression that it is always the consequence of a child has been disproved over and over again. There is no doubt that if albuminous applicates be present, a chill may leasten the occurrence of dropsy; but that slight exposure, such as occurs during convoluceurs from searlet fover, can determine the occurrence of the nephritis is now very generally distoliorest.

In the earlier stage of the nephritis the amount of urine is diminished and its specific gravity is raised. After a time the secretion becomes more copious and at the same time its density falls. Usually the pyrevia subsides when the quantity of urine increases. Dropsy is not an invariable symptom. It may be completely absent, although the other phenomena are well marked. As a rule the nephrifis is rapidly recovered from, and the albuminums and unremic symptoms quickly disappear; but sometimes, although improvement takes place in other respects, the suter still continues to throw down a deposit on boiling; for a long time a certain amount of albumon may be present, and under the microscope the sediment may continue to exhibit costs of takes. In exceptional cases a permanent albuminum may be left. In other instances, and these are probably more common than is usually supposed, the urine ceases to contain albumen and casts, and, indeed, with the exception of a low specific gravity, may present all the characters of health. Still the restoration of the kidneys is not complete, and slight causes, such as a passing chill, may determine a return of all the acute symptoms which have been described.

Dropsy without albuminums is occasionally met with, and this not a more assemic dropsy. In some of these cases albuminum has been present but has disappeared. In others there has been no precedent

albuminums.

Otorrhos is a not uncommon complication of scarlatins. The discharge is often due to an inflammation of the external mentes, and is then, if attended to quickly, of little consequence. In many cases, however, it is a result of extension of the externi from the pharms or masslessities through the Eastachian tube to the middle our. It is then a more serious matter, for the tyneparam won becomes distended with its purulent contents. Destruction of the small bones of the tyneparam usually follows, and the purchance of the small bones of the tyneparam usually follows, and the purchase through the tyneparam escapes by the external cond. The next serious consequences may arise from this complication, as will be described classwhere (see Otitis, and its consequences).

Abscesses may occur in the second or third week, or towards the close of the stage of desquamation. These collections of pus often delay convalences, and if they occur in the neck may be signs of actions import. In the cereical region they are nearly always the result of internal ulceration. In overy case, therefore, a careful examination of the threat should be made, and active measures are required to prevent any spreading of the destructive process in the planyax. A not uncommon seat of abscess at this period is the submicconstinuous at the back of the planyax. This

subject is cherchere considered (see Betro-pharyngeni Aluccia).

Gangrens in ranious parts may occur. Cangrum one occasionally follows southet fever; and gangrene of the vulva, the pharyax, the skin of the abdomen, and that ever a supporting gland may also be met with. Sometimes, as may happen in the case of any fever of a low type which causes tapid seduction of the strength, scarlatina, if severe, is followed by his norrhagic purpura, with bleeding from several mucous surfaces. Even death may ensur as a consequence of the loss of blood. Nervous sequelse may be also met with. Infantile spinal purelysis has been known to occur; and hemiplegia from plugging of the moddle cerebral artery is seen in rare instances.

In addition to the above complications, sourlating is sometimes confused by the presence of other specific fevers. Diphtherin has been already mentioned. Besides this disease, meades and small-pox have been severally known to attack the scarlatinous patient, and run their course at the same time with it. Typhoid fever and scarlating have been also not with together.

There is a form of scarlatina which has been called herer. In this variety the symptoms are mild and ill-defined, and the rash pale and imperfectly developed, or even quite absent. Indeed, the symptoms generally are so little severe that the existence of the fever is often not suspected

until desquaration begins, all is then remembered that the child had complained of a passing sore throat, and had seemed impaid and heavy for a day or two, but nothing more. In these naild cases the after-course of the illness is not always in harmony with its beginning. Indeed, in no case of scariatina, however slight the early symptoms may appear to be, can we wenture positively to predict a favourable course to the illness.

It was long doubted if the form of scarlatina which occurs sometimes after surgical operations was a true scarlatine. The cases are usually of an implement type and the general symptoms trifling. Still, a more severe form of the discuss is occasionally met with. The rish appears a tow days (two or three in most cases) after the operation, and may be almost the only symptom. There is often however, high fever, but the soreness of throat is insignificant. Occasionally desquamation is absent. The healing of the wound is greatly retarded by the complication. That the discuss is really scarlating is shown by the fact that it protects the patient from the

fever poison in after-life.

Diagramia.—In a typical case searlet fever is a discuss which can scarcely be mistaken. The initial vomiting and sore throat, with elevation of tempersture and regid pulse, followed on the second day by a aniform pink rush dotted thickly over with sourlet puncta, is sufficiently characteristic. Unfortunately, many cases are not typical. The ares throat may be scarcely perceptible, the rath may be pule, discrete, and partial; and the temperature on the morning of the second sliv may be little elevated above the normal level. A child with chronic enlargement of the tonsile, who is subject to attacks of sore threat, is found to be feverals, to have some pain in deglatition, and to present a pule, ill-developed discrete such limited to the neek, chest, ablomen and thighs. In such a case it is allowable to feel some uncertainty as to the nature of the nilment. The appearance of the threat is, however, here of importance. The redness is not limited to the tonsils, but extends over the soft pulate, urnia, arches of the facers, and often the back of the pluryax. The reduces is maform, but at its margin on the soft pulste some punctiform redness may be seen; or the redness may be panetiform in character on the soft palate, and uniform elecutiers. Such a throat, accompanied by vomiting, a hot skin, a quick pulse, and a whitecoated tongue, is very suspicious of tearlet fever. Some forms of crythema imitate the rush of scariatina very closely; and if there is a history of a recent unwouted indulgence in dict, the illness may be easily attributed to this cause. If such a rash be nontrigunied by a normal temperature, scarlating may be positively excluded. But it is important to remember that the increase of bodily heat may be very molecute. I have known the morning temperature on the second day to be only 99.57, or one degree above the oremal level, although the disease was a true scurlating, which afterwards became better developed. A pulse of 140, however mild the other symptoms may be, should make us appear the existence of the fever very strongly; and in no case where the temperature reaches 10% or over should we venture positively to exclude the disease. An erythenatous ruth is selden so widely diffused as in the eruption of sauriation; and in particular as usually absent from the neck and limbs. It also spreads very irregularly. In all cases of doubt we should inquire about pains and staffness in the articulations, and examine the joints, especially those of the fingers, for signs of swelling. We should also feel for enlarged glands in the neck. Often these symptoms are present early, when the emption is very partial and incomplete.

When the rash is dark colored, discrete, and slightly elevated, if may

be mistaken for measles; but the absence of eneering and inchrymation, and the presence of bright red injection of the throat, with an unusually

rapid pulse, should farnish a sufficient distinction.

Roscola may be mistaken for scurlatina, but the rose eruption occurs in larger spots, and indeed more resembles measles than the discuse we are considering. Moreover, in roscola there is little or no fever; no smalling of the joints; and the regidity of the pulse is normal or only moderately increased.

Scurlatina may be closely simulated by agus. Dr. Cheadle has described the cases of two children in whom the skin during the hot stage was covered with a bright red rash. This oruption, combined with a quick pulse and a high temperature, was very suggestive of scariation, and neight enerly have been mistaken for it. The distinguishing points are referred to else-

where (see Agree).

Sometimes in the mild anomalous cases of the disease desquareation may be long delayed, and the absence of peeling may be held to exclude accriation. In these cases we are directed by Sir William Jenner to commine the skin about the roots of the finger-nails for signs of scaling, as it may be discovered in this situation as early as a week or but days from the

constion of the illness.

Scarlet fever is hardly likely to be confounded with diphtheria, for the incusion and general symptoms of the two discuses are very different. It is important, however, not to overlook the possible intercurrence of diplotherm as a complication of the fover. If this unfortunite accident happen early, during the first week, there is usually an offensive discharge from the nestrils; the voice often becomes house; and there are symptoms of great depression. If it occur at a later period, when the petient seems approaching consulescence, the fever returns; the throat becomes again points); the glands of the neck cularge and are tender; there is a discharge from the nose; and in most cases the larger becomes quickly involved. According to Troussons, scarlating avoids the laryus, while dipatheria has a well-known tendency to attack the windpips. The occurrence of hourseness, or the appearance of an offensive discharge from the nostrils, in any case of scarlatina, should cause us at once to make fresh examination of the throat; and probably the appearance in the fames of the dirty-white tengli-looking membrane on the deep red swellen surface will at once prove the accuracy of our anticipations.

Prognoss.—Scarlatina is a discuss as to the course of which it is unwise to include in confident predictions; for an attack which begins mildly enough may end in a very different manner. Some of the worst cases are those which begin in such a way. Scrofnlow shildren are bad subjects for scarlet fever, and in them an attack of apparently mild type may be folleved by a distressing series of complications. Not long ago I attended a young girl who had been subject for yours to serofalous disease of bone in ramous parts of the body. She was taken with souristics. The symptoms were slight at first, and for a fortnight there was no cause for anything but estimation at the favourable progress of the illness. In the middle of the third week all this was changed. The patient first began to complain of rheumatic pains. She was then attacked in rapid succession by alluminous replicitis, peri- and endo-carditis, and double pleurisy. Ulcerative audicarditis then ensued, which led to coveral embolism with left hemiplegia, and afterwards to renal embolism, with return of the allowminuris and casts which had previously disappeared. The girl eventually died suddenly on the eighty-ninth day, apparently from eletting in the pulmonary artery. In cases such as this there may be positively no indication that the hitherto benign course of the discuss is to change so seriously for the worse. When, however, the fever has assumed a severe form in other children of the same family, we must always be prepared for some such catastrophe; and until the discuss is actually at an end we cannot put aside our appreheusions.

Previous ill health from other causes than acrofuls does not apparently modify the prognosis; nor does early inflancy inflaence unfavorably the course of the disease. The exact character the fever is to assume appears to depend upon the type of the epidemic and the constitutional peculiar-

ities of the patient.

The malignant forms of searlet fever are almost invariably facul, especially those in which the nervous symptoms are violent. A mild nocturnal delirium is not of unfavoumable omen; and alight wandering in the daytime, if there he no other symptom of nervous disturbance, used excite no unxiety; but if the delirium is active and persistent, with violent agitation and sleeplosmess passing rapidly into stupor and prestration, we can have little hope of a favourable issue. Convulsions occurring after the first day, especially if repeated, are very serious. No indication is to be derived from the colour of the moh, for a dark tint of the cruption is not necessarily an unfavourable sign. There is mass for great accordy if the temperature rise continuously; if the throat affection be severe; if there be frequent and long-continued varieting or copious dysentenic diarrhon; if replinitis appear early; or if there be great dimination or suppression of the orinary secretion. Unamic symptoms are not so soore in the child as they are in the adult. At least, according to my experience, it is not common for a child to die of unsum poisoning, if judiciously treated,

Treatmost.—In cases where any member of a family is taken with soutlet fover, it is of importance to present the illness spreading to the others. Prompt isolation of the patient is of course to be meisted on; and it is well, if the step can be conveniently adopted, to send the other

children away from the neighbourhood of the sufferer.

Various prophylactic measures have been recommended to arrest the discuss in the incubative stage and prevent its further development. Belladours, which was at one time largely employed with this object, has been now proved to be usuless. It neems likely, however, that in arrents we have an agent of greater value. It has been noticed that a person who is being treated with amendo cannot be successfully uncounted; and it is possible that the drug may have a countemeting influence upon other forms of infective matter. Practitioners who have made use of the remedy with this object speak favourably of its people lastic virtue. Dr. W. G. Walford his given the drug largely to children who had been exposed to the infection of scariatina, and states that out of nearly a hundred such cases is only two-did the development of the fever follow, and both cases were extremely mild. He recommends the ordinary fig. arsenindis (P.B.) in no large a close as the age of the child will allow, with sulphursus acid. (A ay.-axx.), and a little syrup of poppy. The child should take the dose regularly three times a day at the first; afterwards less frequently.

When the discuss actually declares itself, prophylactic measures must

When the discuss actually declares itself, prophylactic measures must of course be hid aside. In a maledy such as scarlatina, where the general symptoms are often eighest, and the complications are various and may be severe, the therapoutic measures at our disposal are measured very numerous. Still, we must depend for a successful result sacroupon eighbut running than upon the actual administration of drugs; although these, especially when complications occur, are often of sensible value.

However mild the arregions may be, the child should be kept in bed in a well-ventilated room from which all cospets curtains rags, cushions and other woollen articles not required for the combut of the patient have been previously removed. In order to prevent the spread of the discuse, a sheet kept wet with a solution of carbolic acid (one past in forty parts of water) should be instead so as to long over the door-way; and care should be taken to disinfect all exceets soled lines, etc., before they are removed from the room. The child may be allowed to drink as often as be desired of pure filtered water, but the quantity taken at such time of chinking must be limited. His diet should consist of milk, broth, light publings, bread and butter, etc. The best and irritation of the skin is greatly releved by sponging the surface of the body several times a sky with topid water, and afterwards drying with a soft towel. This is a more pleasure operation than the impaction of fits, which is sometimes recomplement operation than the impaction of fits, which is sometimes recom-

mended, and is quite as serviceable to the patient.

In an onlinery case little molicine is required; but if the threat is painful, a draught of eldorate of potash may be ordered. Should the throat become much inflamed, and the carried glands of the neck swell and be tender, the child should be made to suck ace, and but applications (linscol-meal positions, frequently renewed) should be applied to the neck; or we may use the cold compens, which, becoming heated by contact with the skin, acts in the same way. Cold thus applied internally, while the outside of the throat is kept warm, often produces a mysd muriforation in the symptoms. If, however, the throat affection, instead of improving, becomes weese, and alceration is noticed, it will be necesssary to apply some local application to the funces. In such a case the throat having been carefully cleaned with a brush dipped in warm water, a solution of nitrate of silver (half a drachm to the source) should be applied freely to the whole of the ulcerated surface. Moreover, any special after may be touched once with the solid emotic. The weaker application must be repeated every morning for three or four days; and in the interval a solution of common salt in water (half an ounce to the pint) can be injected frequently into the fraces. It is very important in these cases to keep the throat clean impole, in order to remove quickly the possessus secretions thrown out from the diseased surfaces; and frequent syringing or garging of the throat with a saline solution such as the above, which dissolves mucos and facilitates the separation of tenscious scriptions, will be attended by marked benefit. If required to clean the mucous surfaces, the soline solution may be applied from time to time with a brush. In addition to these measures, disinfecting applications may be made use of; such as a wmk solution (two per cent.) of embolio acid, or a lotion composed of Eq. sodie vidorinate (1) xx. to the sunce of water). In these cases of severe sore throat it is advisable, as much for the sake of others as for the benefit of the patient, to keep the air of the yours established with a solution of eurbolic said (one part in thirty of water) by Dr. R. J. Lee's steam draught inhaler, or some similar apparatus. The application of sulphaneous acid to the throat, as recommended by the late Dr Dewces, is also useful. This remaily should be used with an stonezer, and the acid, pure or diluted with an equal proportion of water, should be surneed into the throat for a few mitrates every two or three hours.

If there be coryen, the seline solution may be injected into the nust

fosse, or the nose may be syringed once a sky with a weak solution of

nitrate of silver (gr. v. to the ounce),

Absorance forming in the neck must be opened directly fluctuation is detected, and be afterwards well positived. If homorrhage occur, the wound must be staffed with but scaked in perchloride of iron. A postpharyageal abscors must be also opened early with a large trocar and cannots.

If overhoon he noticed, the mentus must be syringed out frequently during the day with warm water. If the tymponic membrane he perfect, the discharge proceeding only from the external canal, a syringeful of some mild astringent lotion should be injected each time after complete cleansing. Giverine of teamis (one drachm to the owner of water) or a weak solution of sulphate of zinc (gr. ii), to the owner) memory well for this

purpose.

In the case of any of the above complications quinine in full doesn (gr. iii, four times a day for a child five years old) should be given; and a liberal diet should be allowed, due regard being had to the patient's powers of digestion. When the temperature has fallen in searlet fever the child should have mest case a day, an egg or a little bacon for his breakfast, and should take picuty of milk. As long as the water contimes clear we may be sure that he is not being overloaded with food; but the appearance of a thick deposit of lithstes should at once make as reconsider his dietary, and limit the quantity allowed at his meals.

When the threat affection is severe, iron seems more beneficial than quinine, if administered energetically. For a skild of this age fifteen to twenty drops of the permitrate of iron should be given with glycerine and water every three or four hours. At the same time brandy-and-egg mixtare must be supplied in such quantities as seem desirable, according to the degree of prostration of the patient. In such cases children will take with benefit large quantities of the stimulant. Strong best-ten, most

extract, etc., can also be given.

If the discuss be unkered in with obstinute veniting, the symptom in best relieved by eaching ice. If distribute event, oxide of sinc (free grains for a child of five years old) or bismuth (gr. a.e.) and challs mixture should be resorted to. If at the beginning of the distribute the motions are lump; a mild apprient, such as a dose of castor-oil or a rhuburb and wells provide.

should be administered.

In cases of malignmst seasiet fewer with violent nervous symptoms every kind of treatment will undertunately be often found to ful. If the temperature be high, it must be reduced by cold bothing. The child may either be placed in a cool both (temperature of 70° Fabr.), and kept. there until his teeth begin to chatter; or affusious with water of the same temperature may be practiced as recommended by Currie. I prefer the former method; and there is no doubt that the immediate effect of the both in lowering the pulse and temperature, dissipating the delirious, and relieving the sgitation of the patient is very decided. When the temperature rises ugain and delirmin returns the process must be repeated. Unfortunately, although there is temporary relief to the symptoms, the patient is seldem cured by this mesos, and usually falls after a time into a state of prostration and collapse, in which he dies. A milder way of employing the same treatment is to wrap the child in a weited sheet, and lay him upon a lard mattress, covering him merely with a thin blanket thrown loosely over him. When he shivers he should be released and returned to his bod. The milder practice is smithle in the less severe

cases, and has a distinct effect in reducing the temperature. It must be renembered, however, with regard to this question of hyper-pyresia, that children other bear high temperatures very well; and it is difficult to lay down a broad rule as to the period at which it is necessary to intervens. It is better to be guided in this respect by the general symptoms than by the themcometer. If, as often happens, a child seems comfortable and composed, with a temperature of 105° or 106°, there is no occasion for my step more energetic than that of sponging the surface of the body with warm unter; but if with a lower temperature (103° or 104°) he is delin-ous, agitated, and distressed, the cold both may be used with benefit. Wel packing is often useful in these cases; but when thus enveloped in blankets the child's temperature must be carefully watched. If the skin be induced to act by this means, and the potient sweat profusely, the process is a beneficial one so'l the temperature will fall. If, on the other hand, the skin do not not, the effect of the packing is to cause a further increase in the pyroxia. Therefore, if the temperature be found to rise instead of falling, the blackets should be at once returned. In all these cases the bath, of whatever kind it is, should be supplemented by energetic stimulation in order to counteract the tendency to sublim collapse.

If the child is from the first in a state of prostration, instead of the cold both the hot mustard both may be made use of ; but such cases are solden

benefited even temporarily.

If rheumatic pains are complained of and the joints swell, these parts should be sympped in cotton wood and covered with a firmly applied fluxual landage; and Dover's possiler should be given at night if the pains interfere with sleep. Attention must also be paid to the state of the borrels. Information of the serous membranes must be treated upon ordinary

principles.

If albuminous aephritis occur, energetic treatment must be adopted at once. A more trace of albumen such as is often met with in cases of searlating, is of little consequence, and requires merely tonic treatment; but the appearance of copicus albumon in a snoky urine shows the presence of acute Bright's disease, and is a very different matter. We should therefore at once proceed to swent and purge the patient. There is, perhaps, no condition in which the beautical influence of free purgation is more striking than in this complication. A child of five years old should take every night a dose of compound julip powder (gr. axa-si.) alone, or mixed with five grains of compound seminous powder. Enough should be given to produce two or three watery atools. In the daytime he should he wrapped in a sheet wrung out of topid water and be then well pucked. in blankets, taking at the same time a draught containing a solution of acetate of automain (3 j) and antimonial wine (15, xs.) to insure the free action of the skin. His diet should be simple. As long as there is any pyrexis up solid food should be allowed; and the patient should have nothing but milk and broth with dry toest. Plenty of fluid is useful. If these measures be adopted, the albemen in the assjority of cases will be found to disappear very quickly from the urine. Should it, however, persist, and the resal distrike seem to be passing into a chronic state, iron and ergot are indicated; or three grains of the hydrate of chiloral may be given (for a child of five years old) three times a day. In cases of unemic convulsions purging and sweating curried out briskly are of equal service, and will usually quickly selieve the symptoms, especially if sided by a distretio. The following is a serviceable form :

B. Liq aumonie sectatis	III XXX
Potasse scetatis	St. 75.
Sp. jumperse	FL W
Sp. atheris nitrosi	F 33.
Glycerini	TIXE.
Accress of The M. Pr. Accreton	

To be taken every four hours (for a child of five years old).

A good discretic for children is digitalis; and the drug is well borns in early life. Five drops of the tineture given three tines a day with an equal quantity of spirits of juniper may be employed. Jaborandi and its alkaloul pilocurpine are useful in these cases; and can be given either by the mosth or by subcataneous injection. The most convenient way of administration is to make a fresh solution of the nitrate or hydrochloute of pilocurpine in enter of the strength of one grain to twenty-four minims. Of this solution three drops (one-eighth of a grain) can be injected aubcutaneously, and it a suitable dose for a child of five years of age. Children bear this remedy well. If the solution is freshly made, copious sweating follows the injection; there is often profuse solivation; and the secretical of mine is greatly sugmented. The child should lie between blankets, so as to encourage the action of the skin. The dose may be repeated every day, if necessary. It often confice names and vomiting, but this is immitted.

During the stage of desquaration measures should be taken to baston the separation of the epithelium. The child should be called all over the body every night with earbolized oil (one part of the soil to twenty parts of olive-cal), and this should be well rubbed into the skin. Afterwards he should be thoroughly washed with scap in a warm both. If this be carried

out in a warm room, there is no fear of a chill.

Even in mild cases the child should keep his bed for three weeks, and his room for a month at least, from the beginning of his illness; and until the peeling has quite ceased the patient is until to associate with healthy persons. It must be remembered that desquamation any linger long about the wrists and ankles, the fingers and the toes; and that a considerable time may slapse before the necessar membrans of the threat has completely recovered its normal state. When the child is finally pronounced to be well, it is advisable to send him to the sea-side for change of air before he resumes his ordinary habits and mode of life.

CHAPTER IV.

CHICKEY-POX.

Concurs-year or unfeelin is seldom seen except in young subjects. It is an infectious disorder which occurs generally in opidemics, and attacks by preference children aged from two to six years. At one time it was sepposed to be a form of modified small-pox, but few are now of this opinion, for the emissione against it is overwhelming. Attempts have been made to

impart the disease by insculation, but without success.

Symptoms.—After a period of incubation, varying from seven to fourteen days, the child is noticed to be feverish, and within the next four andtwenty hours a number of small rosy-red spots appear on the class and over the body generally. These are slightly clevated, and number on the first day fifteen or twenty. In the course of a few hours-in any case by the next morning—the papelle has changed into a vesicle or roundish bleb which is filled with clear serum. It has sometimes a very faint pink areola round its circumference. At the same time other popules have appeared, more numerous than on the first day. These in their turn become converted into clear blobs. In this way every morning finds a fresh-crop of red spots, and of fresh blabs formed from the red spots of the pervious day. The change from red spot to bleb may take place very quickly; in fact, the rash has sometimes been described as resicular from the first. In any case it is completed within ten or twelve hours of the appearance of the red popule. The spots appear in no regular order, but are scattered about all parts of the body and limbs, and may even be seen beneath the hair on the scalp. They are also occasionally found inside the mouth, on the soft painte, the inner side of the checks and lips, and at the sides. of the tongue; but when sented on mucous membrane the vesicle changes very rapidly to a small round older. After appearing in successive crops for four or five days, fresh spots coose to be seen. The changes which each individual spot undergoes are as follows:--it increases in size for a day or two, and then its liquid contents, from clear, like pure under, become milks. Some burst and form erasts; others present, after a day or two, a speck of scale on the summit, which to a hasty glance gives a falso appearance of umbilication; the reside then dries up and leaves a thin great, which falls off after a few days. No war is left, as in various unless the child have irritated the skin by scratching; in which case a shallow pet may be seen in the situation of the scale. It is difficult to prevent the shild from scratching the spots, for the eruption is accompanied by consulerable invitation.

The amount of fever varies. At the beginning the temperature may rise as high as 102°, especially if the rash is slow to appear. After the first day or two, however, the pyrexis subsides considerably, and is selfour higher than 99,5° during the remainder of the illness. In some cases a alight exacerbation occurs with the maturation of the vesicles, but the temperature soon returns to the normal level. In the large majority of cases the constitutional disturbance is of the slightest. After the crusts

have fallen the temperature sinks to a lower level than in health.

The duration of the disorder is ten days or a fortnight, counting from the preliminary force to the final fall of the crusts. Afterwards the child may be left in a weakly state for some time; and delicate children may have the outbreak of serious disease determined by this apparently triffing complaint. Thus, I have known neuto tuberculous to succeed after a very short interval to an attack of chicken-pox.

In exceptional cases the complaint is not over so quickly. Mr. J. Hutchinson was the first to draw attention to the gasgrenous eruptions which sometimes occur in connection with the chicken-pex. This damperous complication is not confined to weakly, ill-nourished children, although this most common in them. It is no doubt connected with the curious tendency to spentaneous gasgrene sometimes not with in chil-

dress, and described in another chapter.

secondary abecomes in the lungs.

In gangemons serically the searches, instead of drying up in the ordinary way, become black and get larger, so that a number of rounded black ambs, with a dismeter of half an inch to an inch, are scattered over the surface of the body. If a scab be removed it is seen to cover a deep ulcer. Around it the skin is of a dusty red color. All the westeless do not take on the gangrenous action, so that we find many varicellous scalar of ordinary appearance mixed up with the blackered crusts. The gangrenous process often ponetrated deeply through the skin to the number, but under some of the axide the alceration is more shallow. These cases are very fatal. Mr. Warrangton Haward has reported the case of a weakly baby of twelve months old, who weighed only six pounds and a half. This child was attacked with gangrenous varicella and died in a few days of pyremia with

Disprovit -It is often a very difficult matter to distinguish between elicken-gox and modified small-par. If the eruption follows very rapidly upon the first signs of fever, the disease is probably rancella, for in the case of varioloid the rash is usually preceded by two or three days of fever and malaise with romiting; and the pain in the back may be as intense as in the unmodified form of the disease. But there are many exceptions to this rule, for in some cases of varioloid the normal duration of the preeruptive period is considerably shortened. Again, the spots in varioloid, as in various, are grouped in threes and fixes, while in varicella their distribution is more irregular. Then, the papels in varioloid is always shorty and hard. In varies lin it is pseuliarly soft, and always disappears on stretching the skin. If there be an elevation left after the fall of the scale, it is conclusive in favour of modified small-pox; while a subnormal temperature occurring as early as the tenth day would point rather to varioella than to varioloid. According to Mr. Macuna, the varioullous vesicle is unilocaliz, and can be emptied by one touch of a needle. The vesicle in small gos, on the contracy, is always multilocular, and current be emptied by a single peracture. In case of doubt this difference will stree as a distingmishing mark.

It is important to be aware that a shallow pit or soor may be left here and there upon the skin after undoubted varicella. Pitting may occur in any case where, from the irritation of continued scratching, or from some constitutional prominency of the patient, alcoration of the skin has

been set up in the site of a voscile.

Gengrenous surjectly is distinguished by the history of the case, and the appearance of ordinary surjectloss scale mixed up with the blackward and

gangrenous crusts.

Frontescal.—A civil attacked by chicken-pox must be removed from other children, and prevented, if possible, from picking or scratching the spots. If there be much fever, be should be confined to hed and his bossels must be attended to. When the discuss is at an end, the stable will sequire a tonic, such as quinine or iron. If convenient, he may be taken to the sea-side; and if there be any consumptive tendency in the family change of air during convalencesce is not unimportant.

In cases of gangrenous varies in little can be done beyond supporting the strength with good food mutable to the age and degree of feebleness of the patient, and groung the brandy-and-egg mixture as often as is required. If the gangrenous crosts are few in number, the scales may be removed and the underlying ulcor filled with sodoform powder, as recommended by

Parrot for gangrene of the vulva.

CHAPTER V.

COM-POX:-VAUCESATION.

Tax cose-pox, or vaccinia, is a disease with is natural to the milch cow, but never occurs in the bismon subject except as the result of direct vaccisation. In the cow it appears on the tents and under as isolated spots, which at first are papealar, but afterwards pass through the resicular and pushular stages, as in true small-pox. They scale on the thirteenth or fourteenth day, and fall off in the following week, leaving pits on the skin. This disease is now satisfactorily proved to be the real small-pox, altered in character and modified by its passage through the minual, but still espable, winn conveyed to the hunsa subject, of insparting as much protection as

would be slenyed from a direct attack of the original disease.

It is now a familiar story how Edward Jenner, then freing as apprentice to a surgeon in Gloucestershire, determined to investigate the truth of a heliaf, current in the neighbourhood, that milkers who had become incoulated with cos-pox in the pursuit of their calling, were no longer susceptible to the contagion of small-pox, and how, by careful observation and experiment, he succeeded in establishing the important conclusions—that cos-pox communicated by inoculation to the lamma subject did naturally confer immunity from small-pox; also that the disease, so engrafted, might be transmitted indefinitely from person to person without any abutement of its protective power. Since Jenner's time the practice of vaccination has become universal, and to this great discourges over it that small-pox, as it used to be, with all its dreasful consequences, is almost unknown in the

present day.

Symptoms and Course. - After the introduction of the lymph under the skin of a child previously unrascinated the following is the course of the induced disorder. For two days no change takes place, but at the end of the second day, or beginning of the third, a small elevated papels is seen at the site of the paneture. This enlarges, and by the lifth or with day has become a circular mised pearly-gray vesicle, with a depression in the coutry. The voicele grows, and by the eighth day is fully developed. It is then seen as a thittened, round, gray-colored vesicle, will depressed in the centre and filled with a coloriess lymph. It does not reason stationary, but begins at smoe to lose its transparency; a red arcola forms round its hase mel quarkly spesuls, so that by the tenth day the secrete is found scated on a hardened red base, with the red areon, extending for one or more inches over the skin smund. The vesicle has now become a pastula with purulent contents, and around it the subscutaneous tiesus is inrd and section. After the tenth day the precing pushedly fades; the fluid contents of the pestule undergo absorption; and by the fourteenth or lifteenth day a semb lass formed, which gradually lessons and becomes detached. The crust metally falls in about three weeks from the time of paneture, and in its place is seen a round sunker our pitted with little depensions.

The disease is at fast purely local, but afterwards becomes general. According to Dr. Squire a continuous rise of temperature begins on the fourth or fifth day. This sublenly increases on the righth day, and as sublenly falls a day or two afterwards, when the areola has reused to extend itself. The maturation of the vesirle is also accompanied by other signs, showing that the disease has begun to affect the system. The child is readless and measy; there is some digestive disturbence; and the lymphatic glands in the anapat become tender. Sometimes a rescolous red rush makes its appearance on the affected limb and may extend to the other extremities. This rush may become papulae or even vertealer.

The above is the course of the discuss when the inoculating lymph is taken from another child. Some practitioners profer to use lymph obtained directly from the cow. But with "primary" lymph there is more difficulty in operating successfully, and when the travination takes effect, the constitutional symptoms are more severs. There is also methar difference. With such lymph the whole process is returbed. The pepula does not appear until a week or even a longer time has clapsed and the arcela does not become complete until the eleventh or even the fourteenth day. The swelling and hardness around the pustule are greater, and the secondary rashes are more frequently seen. The scabbing stage is also prolonged, and the crust may not full for a mouth or six weeks from the

day of operation.

Even when househield Jynigh is made use of the process in occasionally retarded. This may be the case when dried lymph is employed, and is invariably som if the patient happen to be incubating measles or scarfalina. Sometimes, too, it appears to be owing to a constitutional. peculiarity. More retardation does not however, affect the value of the result if the development of the induced disease be normal. Instead of being retarded, the process may be accelerated; but this, again, is immaterial, provided the course of the pock he regular. If, however, for whatever reuson, the course of the disease be not regular, and the pack be in any way incomplete, the result must be looked upon as unsatisfactory, and the protection so affected counct be relied upon. Vaccination is apt to be rendered irregular by the presence of acute febrile discuse; of diarrhon) or of certain skin disence, especially larges, eczena, intertrigo, lighen and stropholos. In all such cesses directly the child's health is restored, the operation should be repeated. Unfortunately it will then often fail; for after a spurious exemution the child may be left-tenporarily, at least-insusceptible to the action of the lymph,

In cases of revaccination the result is often irregular. The whole process is then harried. The papulo appears early; the reside is fully developed by the fifth or sixth day; and then at once declines. On the eighth day a scale forms, and becomes detached a day or two later; so that in less then a formight the discuss has run through all its stages. With this, the constitutional symptoms are more severe, and the itshing and local disconsfort greater, then in cases where the ineculation is prac-

tised for the first time.

Protective Falor of Faccination.—Effectually performed, travination is, in the majority of cases, a permanent protection against small-pox; that is to say, the protection afforded by it is as great as that farmished by an actual attack of smioh. Jenner houself never claimed that it would do note than this. As a rule, on individual who has been successfully and enfliciently executated to either insusceptible to the contagion of small-pox, or is capable of taking the discuss only in a mild and modified form.

It is, then, very important to ascertain what constitutes an efficient varcination. This question has been answered by Dr. Marson, who found, as a result of thirty years' observation of small-pox cases in the London Fever Hospital, that while in unvaccinated persons the mortality was as high as 37 per cent, the percentage gradually diminished in exact proportion to the number and completeness of the vaccination cicatrices; so that in persons who could show four or more well-marked scars the mortality was only 55 per cent. It should therefore be the aim of every vaccinator to produce four or five genuine wall-feveloped vesicles upon the arm of the patient. With less than this number the mornation, although it may be successful, cumot be considered to be sufficient, nor the protection as complete as it can be made. As a further precaution it is usual to retage inste the individual efter he has attained the age of puberty. Should this be ansaccoodal, it is advisable to repeat the operation if at any time the person become liable to be exposed to the centegion of small-pox. especially if upon examination of the arms he is seen to bear only imperfect evidence of a former vaccination. The protective power of caccination is well seen in the following figures, kindly supplied me by my friend Dr. Twining. The cases were under the care of Dr. Gayton, of the Honerton Small-pox Hospital. Between 1871 and 1878, 1,574 children came under observation, suffering from small-pox. Of these, 211 hall been officiently receivated, and one of them died. 356 had been imperfectly vaccinated, and of these 39 died; 179 were said to have been vaccinated, but hore no marks; of these 45 died; 788 were known never to have been succinated, and of these 385 died. Taking the last two groups isgether, the mortality in unvaccinated children was 44 per cont. under ten years of age.

Method of Vaccounting.—The lymph used should be taken from the arm of a healthy child at some time between the with and eighth day of vesicstion, while the reside still retains its purity and transparency. After the eighth day it should not be used. The child, the subject of the operation, should be in good health. If he be poorly, especially if he be feverish, or be suffering from some skin eruption, the operation should be postponed. It was Jenner's own direction to sweep away all eruptions before inserting the Ismph. This rule is a very important one, for although the vaccimtion may possibly take effect, it is more likely that it will full, and a spurious vaccination may reader the child's system inansceptible to the vaccine lymph without affording the desired protection against small-pax. Many methods of inserting the lymph are now in use. The simplest, and perhaps the best, is to make three separate punctures on each arm, inserting the point of a perfectly elem lancet, most ened with fresh lymph, sufficiently deeply to draw a little blood. In making the punctures the skin is stretched between the finger and thumb, and the point of the lancet is inclined downwards, so as to enter the skin obliquely. If fresh lymph cannot be obtained from the arm of another child, lymph stored in expillary tubes, or dried on ivery points, may be used. The dry points must be first well moistered with water, and then inserted into the punctures made by the larget. As many should be used as there are punctures made; and the points should he pressed down into the little wounds and allowed to remain for a minute. On being withdrawn, they should be pressed against the sides of the punc-

lare, so as to insure the lymph being left in the skin.

Occurrent Sepecte of Proceedies, —Sometimes errapeles has been set up by vaccination, and even pyemia has been known to follow, and empothe death of the child. These unfortunate consequences are not to be attributed pecensorily to any enrelcomess or unknowinger on the part of the operator, nor to any impurity in the lymph employed. They are due to the constitutional state of the shild at the time of the operation-a state in which the puncture of the lancet is followed by these untoward accidents just as my other triffing operation might be followed by them: A rescolous and popular rush has been already referred to as sometimes following the instaration of the pustale; but other rashes, such as ecoms and the various skin cruptions to which children are liable, may be seen after vaccination. These rashes are always attributed by parents to the insertion of the vaccine lymph. In some cases vaccination may have been indirectly a cause of the skin affection by lowering the child's general health-a result which in childhood is apt to follow any feverish attack; but often the occurrence of the eruption at a short interval after the vaccination is a mere coincidence, and is exting to an entirely different cause. In outpatients' roccus of leastitule it is not uncommon to find even scalairs attribmed to a recent vaccination.

Symbiles and screenia are said to have been convered from child to child by the vaccine lymph. With regard to the first of these discuss at was long denied that such transmission was possible. Experiments were made, and in France children were deliberately vaccinated with lymph taken from other children suffering from inherited embilis; but in no case was syphilis found to be communicated by the operation. Miny cases, Lowover, have been since published which leave so doubt that communication of the syphilitic virus may take place by this means. The old notion that the fact of a vaccine sesicle undergoing its normal development and presenting its across appearance is distinct proof that the lymph within it is unantaminated by foreign virus, appears to be a correctione. In apphilitiechildren vesicles may assume this appearance, and are then incapable of transmitting any disease other than the cow-pox. If, however, in taking braigh from these vesicles, the purieties be made careleady, and, with the lymph, some of the blood be taken up to the point of the lancet and incomfated into a healthy child, syphilis may follow. No doubt many of the rases in which a sophilitic rash has followed vaccination have occurred in chibles the subjects of inherited exphilis, in when the februle movement induced by the process of caccination has determined the outlevak of an already existing disorder. So also in scrofulous children, a little derangement of the health will often rouse up the latent enchexia, which but for this might have remained domaint a little longer.

CHAPTER VL.

SMALL-POX.

Owrse to the beneficent discovery of Edward Jenner the full terrors of small-pox as it used to prevail can now hardly be realized. In unvaccinated persons, and those upon whom the operation has been performed imperfectly, the discuss may still may with all its material violence, but in ordinary cases the form of the discuss met with is the milder variety which is called variobid. It is the same discase as varieta, although modified more or less by occurring in a subject partially protected by vaccination.

Small-pox is one of the most infections of the scate specific fevers, and in
this respect the modified form is as dangerom as true variefa. The patient
soms to be expalde of communicating the discuss even before the emption
appears, probably, therefore, from the very beginning of the early fever.
He also continues to be a source of danger to others as long as any particle of scale or scale remains attacked to his body after the subsidence of
the discuss. One attack usually protects against a second, but it is far
from uncommon for a person to take the fever two or even three times.

Mortal Andreas -As in most of the infectious forces, the blood in fatal cases in dark and congulates imperfectly; fibrinous clots are often found in the right ventricle of the heart; and in very severe cases hereorrhagic extravasations are scattered about in the loose tissue bereath the serous and muceus numbranes. Internal organs, such as the heart, liver, and spleen, are either pair, flabby, and soft, or deeply congested. The murous mombranes, especially of the simpassages, are intensely hypersense, and are thickened, attened, and sometimes alcerated. Their epithelium is partially separated, and their surface is covered with a brown tenacious mucus. The name condition may be found in the mucous membrane of the much force, the mouth, fances, and gullet. In all of these parts small exconations may be noticed. They are small round spots on the minous surface, either covered by a whitish false membrane or presenting a round point of superficial alterration. These are probably due to an eruption on the mincons membrans of a like nature to that which takes place upon the skin. No such appearances are seen upon the gastro-intestinal neaconsmembrane, but the intestinal follicles and the glands of Peyer's patches are large and projecting. The langs are often intensely ecognited, and are cometimes the seat of pneumonia. Moreover, the pleura of one ade may be filled with evo-purment fluid.

In the skin the morbid changes are as follows: A punctiform hyperomia takes place at various spots which extends through the cutis to the rete muceum. The cells of this part swell and proliferate, so that a solid sharply defined redule is formed at the inflamed spot. Next, the epidermis as existed up by fluid exactation into a reside. If this be formed round a hair-folliole or sweat-gland, it is untifficated in consequence of the summit being held down by the duct. The vesicle is multiboralar, for its inserior is divided into several chambers by delicate partitions. These are not fibrinous, as used to be thought, but are formed by compression of the altered cells by the efficied fluid. They disappear, as well as the unbilication, when the process of maturation is complete. The resicular fluid contains many learney-ten and some red blood corpusales. As the proliferation of the cells of the rete managem continues, the fluid becomes purulent and the vesicle is changed into a pustule. The true skin is sometimes destroyed by this suppurative process to some depth, and there is a

depressed peraspent sour then left after the fall of the scale.

Samples .- The period of incubation of small-por when contracted by infertion is, according to Mr Marson, thirteen times twenty-four bours, ca, twelve whole days and parts of two others. If the disease is produced by inoculation, the period is shortened to seven or eight these. During this stage there are no symptoms in ordinary cases, although a cartain amount of heits/kility and poetishness is sometimes noticed, not usual with the child and indicative of unexament; but no definite symptoms can be observed. On the fourteenth day the first decided indication of the illness appears and the stage of insusion begins. Chilliness with a rise of temperature, sickness often distressing, and severe pains in the back and loins, sometimes in the limbs as well, are the characteristic features of this period. The pain in the back may be associated with temporary puraplegia and is often combined in children with incontinence of urine and laces. Other symptoms are: thirst, less of appetite, a coded tongue, gritding of teeth, frontal headache, and constitution or discribes. A severe amount of nervous disturbance is often seen, and the child may be thrown into violent and repeated convulsions with intermediate delirium and stoper. The violence and frequency of those attacks are not to be relied upon as an index of the soverity of the illness which is to follow, as they are probably dependent less mon the intensity of the varieless power than upon the natural nervous sensibility of the child. A little garl, aged six years, began to have fits on November 27th; they continued until the 29th. Between the correlate seizures the child was drowny and stupid, and often consist. On the 29th the emption appeared. The nervous symptoms then coased, and the disease ran a particularly favormble course.

The period of imusion lasts for forty-eight hours. During all this time the initial symptoms persist and the temperature continues to rise. The pyrexis is not always great at this stope. A boy, aged closen yours, n patient in the East London Childrens' Hospital, suffering from heart discuss and plenniar, who had not been previously feverals, was found one turning to lave a temperature of 101.6. The next morning it was 26. and in the evening 102'. On the following morning (the third day) the thermometer marked 102.2°, and the emption appeared. In many cases, however, the pyresia is greater, and the temperature may reach 165" as higher. In the case of the little gel before referred to it was 103.6° an the morning of the second day. Occasionally during this stage a resecloss ersption, very like the rish of scurlating appears upon the skin. This is not common in cases of modified small-per. It is right to my that the symptoms of the pre-coupline stage are not always even in this marked form. Dr. Teining of the Homerton Fever Hospital informs me that of the visibless who are admitted into that institution suffering from varieds many have complained merely of multise, bradicles, or sickness. and in not a low cases the first symptom noticed was the rade of the disease.

The coupling stage begins on the third day. In exceptional cases-

usually those of a maligment character—the rash may appear on the accordday. Occasionally it does not show itself until the fourth. These exceptions are found in all the eruptive ferers. The special small-pox cruption begins as small red papules scattered more or less thickly over the surface. They are first noticed on the chin, nose, or forehead, and then quickly spread to the whole face. They are peat seen on the wrists, and in the course of the following twenty-four or forty-eight hours spread gradually to the chest, the arms, the trunk, and the lower limbs. The spots are not sprinkled irregularly over the surface, but may be noticed to group themselves in threes and fives, often arranged in a semicircle. Sometimes when two of these crescents come together, they may by their junction complete the rirds. The spots are set more thickly on the face than on the bolls, and as they appear earliest in this estantion, they run through all their stages, and scale earlier here than on the trunk and linds. The popule is hard, and gives to the finger the sensation of a small shot embe bled in the skin. All are not, however, of equal firmness. Some lave much more of a shorty character than others. Between the papales the skin is of normal colour and appearance; but if the spots are set very closely together, there may be a general redness and grammar took of the face without any intervening normal tint of the skin being visible.

At the same time that the papules appear on the skin, spata may be also seen, if Isoked for, on the inside of the checks and lips, on the inside of the nose, and sometimes even on the conjunction. At first, no they cause little disconfort, these are scarcely complained of a but after a day or two they produce salication, and pain in sembraing, and, if the nirpaxages are similarly affected, betweeness and cough. There is also some smalling, and the eyes are red and watery. Later, when the rath is appearing on the lower lambs, the minous membrane of the variant or

urethra and prepare, also become the sent of eraption.

The charges which occur in the min are as follows: The popule onlarges, becoming a did-topped module, and in the course of the second or third day (fifth or sixth of the disease) changes into a vesicle. This change tiles place, as has been said, earlier on the face than on the body to limbs; and, infeed, while the papales are coming out on the lower extremities those on the face are already changing into resides. The vesicle is terral, flat-topped, and umbilicated. Its contents are opeque, and at first whitish in selour; but by the sixth day (eighth of the discuse) have become distinctly purulent, a deep red arests has formed round the pock, and the subjacent skin is swellen by inflammatory effusion. The spot is now a pastule sented on a thickened base. From the eighth to the eleventh day the pock enlarges; and the union of neighbouring arroleand the thickened bases of the postules produces a general redness and swelling which completely obliterates all distinctive character in the featares of the patient, and causes a distressing tension and smarting irritation of the skin which is greatly complained of. There may be also extreme tenderness, so that the slightest touch is painful. The eyes are often closed by the swelling, and the hils are glass together by the citiated secretions from the Meihoman plands; the nose is stopped up; the secretion of active is profuse; and swellowing is very difficult and poinful. The roice, too, is house and the cough distressing. Often the eyes are inflamed, painful and very sensitive to light. The process of maturing of the postules (stage of matemation) lasts from the with to the ninth day (eighth to the eleventh of the disease) on the face; on the lower limbs it begins and ends a day or two later. Consequently, the vaginal and unethral

rathes and the distress they predice are at their height when the familial and laryageal amounts membranes have begun to improve. On these and the other mucous surfaces the eruption does not pass beyond the resicular stage, but in accompanied by considerable reduces and swelling of the membrane. While the postnice are maturing on the skin, the supporting spots give out a possible and suplement ofter, which is however, characteristic of the disease.

The eruptive stage lasts about eight days-from the third to the eleventh of the illness. The appearance of the rish is usually the signal for a remission in the fewer, and in the symptoms of general constitutional disturbance; but there is selden a notable fall in the temperature until the armition is fully out. If the peresia remain ligh after the papular stage is completed, the disease is sovere and manodified, or some compliention is present. In conducte small-pox the remission is very imperfect. and transcot, the reduction of temperature is inconsiderable; and whereas in a mild discrete case the patient feels almost well at this time, in the severer form of the disease the alleviation to the distress is much less complete, and even at this early stage of the illness photopholes, salitation pain in deglatition, and house ough may be the source of great discomfort. In an ordinary case of discrete small-pox when the emption is fully out, the temperature, although still above the normal level, is comparatively little mised; nervous symptoms are no longer noticed; and except for the local inconvenience of the state of the skin, the condition of the patient is greatly improved.

When the postular stage is reached and the process of naturation begins (about the nixth day of the rash, eighth or minth of the discuss), the temperature rises again and what is called "the accordary fever" begins. The intensity of this later pyresia varies according to the according of the attach. In mild cases it may be slight or even absent; but in severe cases, especially in the confluent form of the fever, the temperature rises to a higher level, perhaps, than in the entire stage; the child is stopped or delirious, and often wakeful at night; his tengue is forred and often day; his pulse gets quick and feelde; his weakness is great; and tremors, subsulting tendinum, with other symptoms of prostration, may be noticed. In not a few cases the discuss has ended in death before the period of according fover is reached. In the severe cases, if the patient do not die at this time from the richerce of the disease, he is very apt to successible as in-

flammatory complication.

The secundary fever lasts until the maturation of the pustules is completed on the eleventh or twelfth dry of the sliness. The discuse then enters into its latest period, that of desiccation and decline. In the course of two or three days the pustales discharge their contents; the redness and swelling of the skin subside; the odor from the child's body becomes extremely offensive; and vellowish-brown, thick scales form from caking of the purulent secretion. Nearly at the same time-orders some fabrile complication arise—the pyrexia begins to subside and the tongue to clean; the painful symptoms connected with the mucous membranes disappear in the reder in which they occurred; the pulse slackers and the appetite improves. The falling of the crusts is accompared by some itching of the with It takes place enrier in some parts than in others, and is delayed in proportion to the amount of alcention which is present in the cutis. If this be great, the scale become very thick and horny, and remain attached for a long time. Sometimes successive crops of scale are thrown off before the underlying surface has become healthy. The size of the fallen crusts is also subject to variety. If the pastules have been thickly set, the edges of the neighbouring scales may unite, so that large pieces of dark become, home crust become detached at the same time. The separation of the scales is often very slow on the scale in children; and often new crusts continue to form after old ones have been removed with wearisoms persistcurs. When the crusts have all failen, the surface is left mettled with slightly elevated red spots, which eventually either disappear leaving no trace, or, if there has been ulceration, change into depressed white deep some with inverted edges and an irregular floor.

Considerations.—In severe cases, even if the child survive until the period of the accordary fover, he is very upt at that time to be exerced off by some one of the unity complications which are liable to come on in the third or fourth week of the illness. The severe forms of small-pox, especially the conflaent variety, are most commonly attended by these acci-

dents; but they may also follow the milder forms of the discuss

Rolls are very frequently seen; and the intense inflammation of the cutis which occurs in the severer attacks may puss into purtial mortification of the tissues. Spots of gangrene are thus formed in the skin, and the same thing may be observed in the generals. If a serodulous shild who suffers from ragnitis be attacked by small-pox, there is great shaper lest gangrene of the valva supervene. Such cases, it need not be said, see very damperous.

alberrary and coute collection may occur. Deep-sented collections of matter often form and may reach a considerable size. They are slow to

book. Sometimes the joints are the sext of supporation.

Eruspolus and parisio my common in small-per inseptals—less common in private houses, although they may be met with anywhere when the disease is confluent or very severs. The latter of the two semotimes miccools to the former and is very fatal.

Othis with supportation in the middle car is a not uncontant complimation. The results which may follow from this distressing affliction are

downibed elsewhere.

In all bad cases of small-por there is only sactions, which may come on as endy as the fifth or eight day of the araption. If swelling presents the lide from being opened, conjunctivities may be suspected if the child complain of pain in the cychell, increased by movement of the cyc, and of a feeling of diet beneath the lid. In very rare instances we meet with a development of small pustules on the nancous membrane of the eye; but slight ophthalmin of the kind as a rule is easily operome. The severe inflammation which leads to alcoration of the comes and destruction of the cychell sets in about the beginning of the third week (on the fourteenth day, according to Mr. Marson). As after appears on the reages of the corner, sometimes on both sides of the corner at the same time. The various layers are quickly penetrated; the agreeds humour escapes; and often the lens and sitrous humour are discharged. The process is generally very rapid, and may be accompanied by no pain to the child. Sometimes instead of alcoration general slonging of the sychall may occur.

To some form of chest affects o many deaths in small-pex are owing. Plennisy is common and very fatal. Paramenta may begin insidiously, and is also a very serious complication. Beenchatts is sometimes a cause of death; and, according to Rilliet and Burther, pulmonary orderm is occasionally not with. Beendes these, peri- and endo-carditts may supervene, and it is stated on the authority of Deance and Husbard that arms fatty degeneration of the walls of the heart may be a mass of sublen death.

The largerest symptoms during the period of secondary forcer may be complicated by redema of the larger. This, however, is schlom some except in cases of confinent small-pex. In other instances a severe largeritis may be set up, leading to ulceration of mucous membrane, perichondritis, and necross of carrilage with consequent chronic spheria. Largeritis may be one of the earliest complications, and is sometimes seen on the tenth or eleventh day.

In the case of any of these complications the fever is high and the child, who is borely extering upon convalencemer after an exhausting disease, is in a state of great weakness, which is instantly appraised by the persons of the intercurrent lesion. So that, if the patient do not success to this new danger, his illness is seriously protucted and convalenceme proper-

tionately delayed.

Viscotics —Many varieties of small-pox have been described; but for practical purposes it will be sufficient to remember the special forms of Discrets, Confinent, and Malignost small-pox, and the modified form found

in efficiently saccinated persons which is called varietied.

In the discrete variety the spots are separated from one another by healthy skin of normal tint. The general symptoms are usually adder, and the fever less high, especially the secondary pyrenia, which is much less severe. Still, even in this form serious complications may arise, and when death occurs, it is usually owing—unless the patient be a young in

first-to one of these secondary lenous.

The confluent form is attended by a very high mortality. From the records of the London Fever Hospital it appears that of those attacked by this variety fifty per cent die. In children probably the propertion of deaths would be much greater. The danger consists not only in the security of the eruption, but also in the intensity of the general symptoms. The initial fever is very violent, and is often accompanied by high delirum; there is little remission in the pyrevin when the development of the rash is completed; tremoes and signs of profound nervous depression come on early; the swelling and inflammation of the marcos membranes produce great distress; and the accordant fever is very inlent. If the child survive to the third work, which rarely imposes, a serious complication usually occurs, and this in his submusted state proves

rapidly fatal.

These cases, on account of their severity and fatality in poursy subjects. might be justly described as unfigurat. The term is, however, unally confined to cases in which the nervous emplois are overwhelming and the child dies rapidly from blood-poisoning in a state of profound depression and come; or to cases where the disease assumes a homorrhagic character. In this larmorrhagic form blending occurs from all the nuccus membranes—the nose, the mouth, the air-prosages, and the horsels. The urine is surely or red with blood; the eruption is dark, and mixed up with petcelon or larger subentuneous extravantions; and the fluid in the visicles is trayed with blood. The general symptoms are severe, the prostration great, and death takes place after a few days. My friend, Dr. Twining, has described to use a variety of the audigment form of small pox which has often come easier his natice at the Hemerton Fever Hospital. In this the child appears overwhelmed by the violence of the discuss. He lies in a state of stopor, and has no true turisless rash nor any of the collinary. symptoms of the illness. On inspertion of the skin a number of deep purple, shoost black, spots are seen. These are well defined, and are more or loss circular in alone. They vary in size from a rape to a millet seed,

and are twenty or thirty in number. Mixed up with them are larger patches of subcutamous extravasation, like bruters. These patients have a very offensive smell, as if patrofaction had begun before death, and sursize but a few hours.

Ferniosi, the modified form of the disease, is usually a mild complaint. The early symptoms are the same as in true small-por, and may even be of some weenly. A child may have high fever, much pain in the back, reported somiting, and be consulted; but the after-course of the disease is usually benign, and in particular the secondary fever is slight or completely about. Often, the rash is preceded by a mosolous eruption. The proper rash of variobial, which comes out at the usual time, is in most cases comparatively thinly scattered over the surface, and the spots are very rapely set sufficiently closely to be confinent, even on the face. As in various, the mucous membranes are affected; and salivation, difficult deglatition, snuffling, hourseness, and cough say common symptoms. The spots run through their stages more quickly than in the namedified form, and the stage of desocration usually begins on the fifth or sixth day of the cruption. The stage of mutuation is also less severe; there is less exciling and reduces of the skin , and provin is slight or about. Generally the postules, instead of rupturing and discharging their contents, dry up, so that the pock gradually changes into a thin brown scale, which falls off in a fow days. There is bosides little or no alcoration of the skin, and consequently no pitting is left after the subsidence of the disease, compt here and there was re the inflammation had proceeded further than usual. Lastly, in variefold complications are sure, and the disease in usually at an and in n Sortnirht.

Disposs.—Before the cruption appears the diagnosis of small-pox is difficult in children, for fover and vomiting under in anny of their scale discuss, and pain in the back is not always complained of. In young children the existence of the spinal pain can solden to assertained; but if a child, in soldition to vomiting and fover, loss control over his sphineters, we may suspect small-pox, for such inconfinence is not a common symptom, and points to some special condition not present at the onset of an ordinary acute illness. In small-pox it may be the consequence of the spinal irri-

tation.

When the eruption first appears on the face it is often mistaken for measles. The colour is very similar; and the early appeales may be easily confounded with that form of measles rash in which the spots are more than namily obsated above the surface. On above inspection, however, differences will be noticed. The measles spot is much less mised than the sensil-pox popule, and is not head and resisting to the frager. Moreover, in ancades the cough, coayse, and below attention are significant symptoms, and are quite obsent in the early period of variets. The temperature, too, is less elevated in measles during the stage of invasion than in small-pox. In measles it is usually between 102.5° and 104°, while in unsola it is often between 105° and 106°. After a sky or two the change of the papele into a reside removes any doubts that may have been substained as to the nature of the illness.

The remoless rush which sometimes precedes the papellar couplins may be mistaken for scarlatina. It is distinguished from it by noting its less complete diffusion over the surface, its beighter tint, and more motified character. Moreover, according to M. See, in eases of small pox, when the resolute coupling in present, the variabless papelle has already begun to

appear, and may be discovered by careful examination.

The remission of the fever, which often takes place when the papeller eruption is completed, cannot be relied upon for diagnosis, as it is very uncertain. In the boy whose case was referred to at the beginning of this chapter there was no remission of the fever of the early period of the eruptive stage. On the contrary, the temperature rose still higher, and when the patient was sent away to the small-pox hospital on the third day of the radi, the spots being then vesicular, has temperature (at 8 km) was 100.4.

Varicalla may be readily mistaken for modified small-pox. The differ-

stors between the two discussions are described elsewhere.

Proyesses.—The mortality from small-pass in childhood is very high up to the age of ten years. Infants usually screemb to the disease even in the discrete form. The previous health of the child is an important item in estimating his chances of recovery, for weakly children have small prospect of passing unfely through so formidable a trial. Lettle information can be guined from the severity of the initial stage, for violent containous may maker in a benign form of the disease. Hemission of the fever and constitutional symptoms at the beginning of the symptom stage, semiliars of the rach, normal development of the spots, and absence of subcutaneous fermorrhages, are favourable symptoms; but even in these cases a serious complication may arise during the third stage and carry of the patient.

Of special symptoms, profuseness of submition is not an unfavourable sign, although it occasions much discomfort. Mr. Marson even reparts it as of ampicious cases, especially if conditined with much aveiling of the face and marked tenderness of the skin. Escaling from a nurcous senface, it limited to one tract of that membrane, is not according to Dr. Cellie, to be viewed with approbanion, but if more than one tract is a source of homograph, the prognosis is very unfavourable. He maturin is not necessarily dangerous; but he northings into the skin, if anything more than a

few scattered petechia can be seen, is of very serious import.

Descriptive alcoration of the eyes may be expected in cases of the confrient form of the discase when the accordary fever is high and the skin is very hot and day. If, in such a case, the eyes do not suffer, some other serious complication is certain to occur, according to Mr. Marson. The same sufficiently asserts that if an obser be found at the same time on each

sale of the sornes, that eye will be entirely destroyed.

Treatment.—In turnolosis and the milder cases of discrete small-portion child merely requires to be kept in bed in a large well-restricted men, and to be fed with such articles of diet as me suitable to his age and degree of pyrems. While the fever is high, he should take nothing but milk and broth; but when the pyrexis subsides, he may take fish or once cocked ment, light publings, etc. His whole body should be spenged daily with topid water, and if there is much heat of skim, this process may be repeated several times in the twenty-four hours. He may be allowed to drink freely of pure cold under, and his bed and body lines about he charged every day. No modicine will be required unless construction be present, when a modernic slose of custor-oil is indicated. As in searchtine, the room should be cleared of all curpets, rugs, curtains, and other woollen labries not absolutely indispensable. Open windows, whatever be the sessen of the year, we insisted on by Dr. Collie.

The sewerer forms of the discusse, and especially the confloral variety, require very smodul treatment. The dist should be liberal given in such form as the child can dipest, and in quantity annulate to his power of association. Milk, strong best-ten, sewence of ment, yorks of eggs, light

publings, and jelly can be given frequently and in small quantities at a time. Stimulants, such as brandy and the brandy-and-egg microre, will also be acceled whenever signs of failure of strength are observed. It is best, however, to withhold stimulants during the earlier period of the illness, unless they are imperatively required, for they will containly be wanted at the end of the second or beginning of the third week, when complications generally appear.

If the patient he restless at night and wakeful, a little obloredine may be given continuedy; but we must be careful in giving narcotics, partly on account of the easily depressed condition of the patient, partly because the nir-passages become readily choked by the abundant must used sali-

vary secretion.

The freatment of the skin eruption is an important matter; for in small-pox, unlike the other araptive fevers, the dermstitis which accompanies the maturation of the postules may produce severe local injury as well as marked constitutional disturbance. Very many different methods have been recommended and adopted for checking the mountain process and presenting pitting of the skin, but none of these can be said to be successful. The application of salves of various kinds appear to be useful, but rather through the oil or fet they contain than through the chemical ingredient which was supposed to give them their value. Dr. Collie pronounces against distressing the patient by efforts in this direction, which are certain to prove institctual, and merely recommends the use of olive-oil to the skin. A thirtieth part of carbolic acid increases the value of this applicution. German writers speak highly of cold compresses to the face and hands, and to my other part where the eraption is copous. They state that the application diminishes pain, heat, and redness, and contributes greatly to the comfort of the patient.

The sore throat is best treated by burley-water and other muciliginous drinks. A draught containing perchloride of iron and glycerine, taken

three times a day, is often of service.

At the end of the second week we must be on the watch for complications. Larragitis is often the first to appear, and indeed this intercurrent disorder may begin as early as the tenth day. When this complication occars, the room must be kept warm in temperature of 30" is sufficient; the out must be surrounded with an atmosphere of steam from some one of the many apparatus constructed for this purpose; and the throat should be easeloped in hot lineed-meal positions. Stimulants must be given as seem desimble. If signs of suffication are noticed, transcotony should be performed at once. In cases of orders of the glottis, where life is in the greatest danger, and immediate measures have to be taken to avert a fatal issue, much benefit may be derived from rapid vesication. This is best done by means of bosing water. Dr. Owen Rees directs that the corner of a toroil should be scaled in water as this boils on the first so as to acquire the full temperature, and that it should be then applied rapoily to the region of the threat. Before doing so, the surrounding parts which it is not wished to blister must be covered with thick cloths.

Distribute, if it be treatdescens, must be treated with a small dose of enster-oil, followed up, if necessary, by a desught containing dilute sulplastic acid and a drop or two of therefore of opens. An encount of starch with two series drops of handaman is also useful. If the distribute resist this treatment and become exhausting, nitrate of after or gaille and and

points must be resorted to.

The various forms of chest affection must be treated upon general prin-

ciples. They are excessively dangerous. As the patient is usually by this time in a state of great exhaustion, stimulants must be given liberally; and strong beef-essence and other forms of tood containing much nourishment

in small bulk must be administered in small quantities at a time.

If an elect appear upon the corner, it should be touched with a solution
of mirrate of silver (gr. ux. to the cancer, and afterwards some cliss-oil should
be dropped into the eye. A blister to the rangle is also of wreice. The
conjunctivitie may be treated in mild cases by a solution of sulphate of zinc
(gr. iii. to the corner), dropped into the eye three or four times a day; or a
solution of the nitrate of after (gr. i. to the conce) may be used. If the case
is severe, with natich natice-paradent discharge, Mr. Makura recommends
the stronger solution of the nitrate to be dropped into the eye cace a day.
The lide may be prevented from adhering by bothing frequently with warm
water, and then placing a drop of castor oil between them.

Absorbes must be opened early. Any sign of supportation is a signal

for stimulants, and for quinine with or without perchloride of iron.

If homorrhage occur, the patient must be kept perfectly quiet, and stim-

ulines must be given as required.

In all cases where the skin emption is profuse, cleanliness is of the atment importance. Dr. Collie especially directs the removal of all crusts about the nostrils and lips as they form, for they person the six as it enters the body of the patient. He also insists upon the early removal of all scale under which pus is forming, and recommends that the patient be tuthed duily in a bath medicated with carbolic mid. He also points out the necessity of frequent changing of the body lines. If, as often happens, the child's bead is slow in recovering, the scales must be removed by poulticing, and may omitment must be applied, or the following:

B	Lin plants	Hi	h	'nć	W)	15	LE	8.	K		ä		4	ä	ē	×			8	Ē	ġ				3	1
	Zinci oxydi	48	.,	×	v	6	ĸ	Ö	¥	n	Ö	R	X	٠,	8	ě	×	8			٠		×	4	9	h.
SE.	Vassline	**		×	2	×		-4	۰	٦	•	ř	8	• >		٨	F	8	1	×	ň	ř	X	٨	3	4

Cod-liver oil and iron are also indicated.

In the mulignant form of the discuse no treatment is successful, and the potent invariably dies.

CHAPTER VII.

MUMPS.

Mrura, or Paretiditis, is one of the railder infectious disorders of childbood. It is rare in infancy, and cannot be said to be common before the fourth or fifth year. Again, after potenty the liability to the disease diminutes. It addom occurs a second time in the same subject. Mampa is usually spedenic, said is especially common in the spring of the year. Its infectionances is extreme, so that if the complaint break out in a school, or other institution where young people are congregated together, few are likely to escape. The virus is supposed to be conversed in the breath. The duration of the illness is from a week to ten, twive, or fourteen days. There is, besides, a period of incubation which has been variously estimated at from one to three weeks.

Marked Acatesay.—The disorder consists in an inflammation of the ducts of the purotid and other existary glands, with infiltration of the collabor tissue of the glands. Exulation also invades the subcutaneous tissue for some distance around, so that very widespread swelling may be the consequence. The discussed action does not go on to supportation, but ter-

minutes in resolution in the course of a few days.

Symptoms. After a period of membetion which, according to Dr. Dukes, turies from sinteen to twenty-freedays, the enricest again of the disorder are noticed. The first symptom is fever, which usually procedes by nome hours any sign of local disconfort. The temperature is generally high, rising sometimes to 103°, and, as is often the case with children, the pyresia is apt to be accompanied by headache and romiting. Swelling of the parotid gland may occur at the some time as the fever, or may even precede it. In any case attention is seen uttracted to the face. Aching and tendernous are complained of situated immediately below the ear, and behind the ascending runns of the powbone; and on inspection the normal depression between the face and the neck is found to have dissppeared. The swelling strikes forward into the face, and backward and downward into the neck, so that when fully developed it covers the whole of the perotid region. If, as often happens, the influentation extends to the submaxillary glands, and attacks both sides, the familiar face is currously distigured, and is warredy recognizable by the friends. It is enormously widened at the level of the nose and lip, and the clain may almost disappear in the swelling of the neck. The swelling is very tense and slastic. and is extremely sensitive to pressure. The skin over it as either pule or is suffused with a recovered blash. The full development of the aveiling compass from three to six days; then, after remaining unaltered for one or two days longer, it begins to subside, and by the tenth or tredfin day from the beginning of the disorder all fulness has discopensed. During the whole of this time the aching continues, and is greatly intensifed by movement of the jaw; so that mastication becomes impossible, speeds is

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hampered, and even evallowing is difficult and painful. One consequence of this is that saliva tends to accumulate in the arouth, and is a cause of much disconfort. Fortunately, however, its secretion is selden greater

than patural.

While the discuse is in progress the fever sensors high. When the swelling has reached its full development, the temperature falls, suddenly or gradualle, and during the process of resolution the heat of the body is natural. The discuss soldom attacks the two sides of the face quite simultaneously. One ude generally precedes the other by some hours or days. In one cases the inflammation remains limited to the gland first attacked.

Although the parotid ginn's are princarily and principally affected in the large inspority of cases, this is not the invariable rule. Sometimes the inflamoustica is localized in the submandlary glands, and the parotids suffer little if at all. Dr. Pemoddt, of Erlangen, in an epidemic of undoubted namps occurring in that town, noted some cases in which the swelling of the parotids was so slight as to be scarcely observable, while the subnacillary glands were considerably enlarged and very pointed. In one

case there was in addition swelling and redness of the toroils.

One of the most curious features of this disorder consist in the metastues which occasionally occur. As the inflammation subsides, or even a day or two after the swelling has disappeared, a similar condition develops reelf in a disturt part—the testicle, in the case of a boy ; the breast, if the patient be a girl. These complications are accompanied by fever and gencral poorlines, but subside in the course of a few days. In rare cases oreloits has been known to precede the affection of the puretid gland. Thus, a young contlemus described to use low he had had no attack of orchitis, accompanied by assure pain but a normal temperature. At this time there was also lately no symptom connected with the face. Sixteen hours afterwards, however, slight awelling and tenderness of the pureful gland began to be noticed, and the temperature was found to be 100.6". As the numps subsided, the second testide became inflamed. In this attack the temperature rose to 105", and for some days was as high as 104°, with delirium and distressing wending. Sometimes the appearsince of smalling in the organ secondarily attacked is preceded by severe constitutional symptoms. There may be high fever and deliring; or great production with coldness of the extremities; or viriout romiting and purping. In any case, great slarre is excited by the combition of the sufferer; but all apprehensions are removed by the appearance of the local lesion. These complications are less common in children than in adults who suffer from mrungs, but it is well to remember that it is possible they may occur.

There is mother and occasional after-consequence of nameps which it is apportant to be acquainted with. This is deafness, coming on some time after the purchates has subsided. The bearing may be affected in one of two ways. An extension of the inflammation may take place to the Eustachina tube and middle on. These cases are very amenable to treatment and usually recover. There is, however, another class of cases of a much more senious character, to which attention has been directed by Mr. Dulby. In these the deafness records on quite suddenly. The child goes to bed with his hearing perfect; in the morning be is found to be deaf. Little can be done for this form of deafness. It is probably dependent upon some aftered condition of the antiditory agrees, for no appreciable lesion can be detected in the mulitary appearatus. Whether the loss of hearing

be complete or merely partial, little hope of material improvement combe entertained.

In some rare cases an attack of mumps has been known to be accompanied by facial paralysis from extension of the inflammation to the Portio Dura.

Pageoria.—Mamps can only be conformed with inflammation of the parotid gland of a non-specific character, such as may occur in the course of some fevers—symptomatic parotiditis, as it has been called, or parotid bubs. In this case both sides of the face may be attacked, but the fact of the lesion being a secondary, and not a primary discuse, and of the rapid suppuration which takes place when the inflammation is symptomatic, should clear up any uncertainty which might be felt as to the nature of the case.

Mamps is probably infectious from the very beginning of the disorder, and remains so for some time after the swelling has subsided. Dr. Squire is of opinion that for at least two weeks after the disease has eleared away, the child should not be allowed to return to his healthy companions.

Treatment.—As the chause cannot be arrested, but must run discourse, little active treatment is required. It is best to put the child to bed, and to keep him there as long as the temperature is elevated. Hot poultiers should be applied to the parofid region and be frequently changed. If the pain be not relieved by this means, an ointment composed of equal parts of extract of beliadours and glycerine may be smeared gently upon the skin over the inflamed glands, and the poulties be applied as before. The jave must be kept at rest, and no solid food can be allowed. Instead, the child should have strong beeddes or gravy soop, meat jelly, milk, yolks of eggs, etc.; but if there be high fever, with foul fougue and derangement of the digestive organs, as is most usually the case, the stomach must not be overlooded even with liquid food, and care should be taken to supply nourishment in small quantities at a time. If the fever be high and comes restlesones, the surface of the body can be sponged with topid suter. The bowris must be attended to and constinution relieved by some gentle aperient, such as compound liquorice powder or the liquid extract of rhammus frangula.

In cases of metastases to the maxima of testicle, perfect rest must be enforced; and the local treatment recommended for the face should be had recourse to. The alarming symptoms which sometimes precede the appearance of the secondary lesion usually pass away in the course of a few hours. If there he great prostuntion, stimulants must be given, and

warmth be applied to the extremities.

CHAPTER VIII.

CEREBRO-SPINAL FEVER.

(Epidemia ceretro-spinal meningitie.)

Crimmo-would fever is a specific inflammation of the membranes couning the brain and cord. The malady is no mere local disorder, but a blood disease, of which the inflammatory affection of the meninges is the smalomical expression. It usually prevails in epidemica, and outbreaks of the disease have been noted in various countries widely differing in

climatic and other conditions.

Countion. - The epidemics of cerebro spinal fover generally occur during the winter mouths; but isolated cases are often noticed for some time before the disease becomes more generally diffused. Thus, before the epidentic which prevailed in Ireland in 1867, sponsdie cases had been observed in the country for some years. The discuse appears to be mildly infectious. It fasters upon old and young, rich and poor, but make appear to be more liable to saffer from it than Jemales. In 1846 some cases occurred in the Dublin and Bury Workhouses, and shortly afterwards in the Belfast Workhouse. In these cases the sole virtims were boys under the age of twelve. The girls and abilits escaped. In all epidenies children are largely affected, for unlike typicus, of which corebro-spiral fower was at one time supposed to be merely a variety, the disease readily attacks young subjects, and is most fatal in early life. Although not generated, like typins, by maintary conditions, the conet of the fever seems to be favoured by them; and ford sir, bad food (especially repotized grain, according to Dr. Bichardson). exposure to cold and damp, and physical fittigue, no doubt tend to encourage the spread of this fatal maledy,

Morbid Austrany.—The vessels of the pla mater, both of the brain and cord, are congested, and lymph is exaded into the submectacial tissue. Sometimes it is also seen in the ventricles. It usually consists of epaque purellent matter of a greenish-vellow color. The amount varies. If may occur only in patches, or may be more general. The lymph is especially abundant at, or is confined to, the base of the brain—nearly the posterior portion, the surface of the needolla oblougata, and the upper part of the spiral cord. There is often congestion of the substance of the brain, and there may be serous effection or actual extravasation of blood. The choroid please is much congested, and the coroical part of the cord may be coroused with a thick large of brightest vessels. In the worst cases of the

disease the blood is very dark in colour and unusually liquid.

The annihilion appears to be thrown out with great rapidity, for it may be found in cases where death occurred within a few hours of the cirkli being attacked. Etsert and others have found interococci in the purment efficient of the maninges, and according to some observers the disease is secutially due to micro-organisms.

Of the other organs: the spleen is generally maltered, although sometimes it, as well as the other viscera, may be congested. There may be signs of pleurisy, and scattered putches of hepatinstion may be seen in the lungs. It is said that the againsted and solitary glands of the intestine

have been found in some cases to be swollen,

Souptoing.-The disease generally begins anddenly during sleep, hiring been preceded by few or no premonitory symptoms. In certain cases —usually the milder ones—the child may complain, if chil snough to do so, of wandering pains, and may seem pourly for a day or two before the outbreak; but there is seldom anything to fix the attention before the first violent symptoms of the disease make their appearance. In rare coses there may be healbebe, voniting, and general tenderness for some slays.

previous to the setual beginning of the illness.

As a rule, the first noticeable feature is a rigour or a fit of convulsions; and the younger the child, the more likely is the attack to begin with a convalsive science. Sometimes severe leadache and vomiting may usher in the disease. If the patient, as is often the case, seems heavy and stoped after the fit, he still shows by his restlesaness, his mouns and cries, and by frequently energing the hand to the head, that he is suffering setere pain. The pupils are contracted; the pulse is quick, seldem lawered in frequency; the temperature (which should always be taken in the rectum) is 101-2°; and the breathing is harried. An early symptom is retraction of the head upon the shoulders. It has been suggested that this position is at first partly coluntary, to relieve the pain (which we know, from the case of the adult, to be of a very assess character) shorting down the back; but it soon becomes involuntary from spasmodic centraction of the muscles of the nuclea. It may occur within a few bours of the ouset of the illness, and is rurely delayed beyond twenty-four hours. The tetanic spasm of the muscles of the neck may extend to the whole back; the jave, or even the limbs, and may be varied by clonic convulsive movements. In a short time the cries and manifestations of pain cease as the senses become duller and the stupor increases. If consciousness is lost early and does not return, the symptom is a very grave one.

About the second or beginning of the third day a herpetic eruption appears upon the face, and purposes spots may come out upon the body and limbs. This eruption, which is not invariably present, has given to

the disease one of its names-"spotted fever."

When the disease is at its height, the child lies on his side in the cotwith his head retracted his limbs flexed and his spine often rigidly curved. He is completely unconscious, but still remains uneasy and restless, often moving one or both lower limbs monotonously. The pupils are now generally dilated, usually sluggish, and perhaps usequal. The belly is flattened; the bowels are constinuted; the pulse and respirations are quickened. At intervals spasms are noticed; the head is drawn more backward, and the curve of the spine is increased. When the stupor is complete the bladder is evacuated involuntarily, or there is retention of urine.

In fatal cases the come continues, the breathing is accompanied by rattling within the chest, and the child sinks and thes. If the case is to end favourably, the stuper grows less profound and the restleaness dimintimes. The rigidity is late in releasing, and usually the mind becomes clear while the head is still retracted upon the shoulders.

The special symptoms above referred to vary considerably in security

in particular cases :-

The fever is very variable and has no regular course. The internal heat, as tested by a thermometer introduced into the rectum, is generally higher than the surface of the body; but even in the rectum the mercury may only mark a degree over the normal temperature. At other times it rises to 104" or 105". If early collapse come on, the temperature may

sink to below the normal level.

The skin eruption is a valuable sign. In some epidemics it is a rare symptom; in others almost all the osses exhibit a number of purposit spots. In every recorded serious outbreak both the narculated and the non-maculated forms of the disease have been observed, although one may have been more common than the other. The rash consists of dark purple spots or blotches due to efficient of discoved hamatin into the true skin and arcoin tissue beneath it. They generally occupy the logs, hands, face, lack, and neck. They are sometimes slightly elevated, and vary in size from a pin's head to a uniout. According to Dr. J. A. Maraton's observations in the epidemic which occurred in Ireland in the year 1867, there is no necessary relation between the occurrence, the number, and the extent of the spots upon the skin and the amount of the intra-countal and intra-sponal moschief. Dr. Mapother, referring to the same epidemic, states that the spots cannot be produced artificially by pressure on the skin as in true purpose. Besides the petechia, there may be begin, artificially and patches of crythoms or roscals. The skin may have a dusky tint and is often moist. Cerebral flush is not a marked symptom.

The mental condition also varies in different cases. When the discuss is violent and death occurs early, the child may be unconscious from the first. In other cases stupor comes on by the accord or third day. In the mildest cases the mind may be hittle affected, or there may be slight delirium with curious hallucinations. Thus, Dr. Lewis Smith refers to a case in which the child answered questions with perfect clearness, but constantly mistook his mother for another person. Usually, in all cases

before death the come is prefound.

The pains referred to the head and spine are always a distressing and prominent symptom. They are often so severe that the child, until he becomes constone, is constantly morning and sevenning. The pain is increased by insversents of the back, and especially by attempts to press the head forward. The general tenderness of the skin adds greatly to the child's discomfort; and sometimes a touch on the body, as in moving him

to after his position, causes the greatest distress.

In some cases paralysis is noticed. It is, however, a comparatively more symptom, and is normally partial, being limited to one or more limbs. It may affect the corateral across, especially the third, the sixth, and the facial. The beston of the nerve-tranks is due to purulent infiltration of the neurilemma, or to contraction of the hyperplastic connective tissue of the nerve-sheath. In cases of recovery the paralysis may but through life, but sometimes it passes off as the patient improves.

Convolutions, general or partial, are comparatisely common in the case—of children, certainly much more common in them than in the abilt. They are especially frequent in the more severe forms of the disease. The cloud spissus constitutes afternate with tonic contractions; and may be general

or limited to one-half of the body. Nystagrous may be noticed.

Vomiting is seldom absent at the beginning of an attack. It is often severe, and like all forms of nervous vomiting is independent of taking food. The thirst is great. Constipation is the rule; although in some spademics the disease has been noticed to be ushered in by purging as well as somiting. The tongue may be clean or furred; towards the end of the disease it becomes dry. Abdominal pain, if present, is like the hyperosthesis of nervous origin. The belly is seldom retracted, and never to the degree observed in cases of tubercular meningitis. Occasionally it is full

or even tympositic. The spicen is sometimes enlarged.

The pupils are at first contracted, but dilate as the stupor deepens. They are often shaggish, and may be unequal in size. A squart is sometimes noticed. Eliminess may occur from herabilis owing to imperfect closure of the sychida or from neuro-retinitis due to the syread of the purulent inflammation along the optic nerve; and in some urre cases the systeall has been known to be completely destroyed by supparation. The hearing may be also affected. A temporary deafness with noises in the head may occur during the first days of the disease and be afterwards recovered from. If it occur later, it is probably due in most cases to purulent inflammation within the labyrinth. This form of deafness is usually biliteral, complete, and permanent; and if the patient be a young child, may lead to deaf-names.

The pulse is seldom otherwise than quickened; but it rarely attains at first a high degree of frequency, and is subject to rapid alternations. It is not often intermittent, but is usually very feeble. The breathing is also quickened, and is often irregular and interrupted with sighs. The normal

relation between the pulse and the respiration is preserved.

The urine is often natural in quantity, color, and reaction. It has been

known to contain albemon and even blood.

There are many differences in the various cases of cerebro-spinal fever met with in the course of the same epidemic. In some the symptoms from the first are indicative of profound blood-poisoning. Consmousness is affected from the beginning; there is extreme prostration, a feetle fultering pulse, and labored breathing. Then spots appear early and are extensively distributed. The stapper despens into come, and death takes place with startling rapidity. In these cases the more special symptoms arising from the local influmention are overshadowed by those dependent upon the general condition, and the patient dies from blood-poisoning. In another class of cases the symptoms of cerebro-spinal influmention prodetenance and the more analysed phenomena are the convulsions, the drawing backward of the local, the hyperasthesia, and the tetano contraction of muscles. In this form if the discuss and unknown by, death is owing mainly to the local lesion. As a rule, the affection is most severe when the epidemic is still young. As the cases get more non-consistency to take place.

In some instances curious intermissions occur in the disease. These may be found quite at the onset, evident prementiory symptoms appearing, passing off, and returning, perhaps several tissue, before the actual outbreak occurs. In other cases during the course of the disease more or less complete remission of the symptoms lasting for several hours or a day may take pince. According to Dr. Frey, this is very common at the end of the second or third sky. Again, during contralescence the more variations may be seen, the headache and retraction of head being at times distress-

ing, at other times sorreely naticeable.

According to Dr. Osser Media, of Stockholm, infants under twelve months old are especially liable to the disease. At this early age the illness generally sade fatally; but sometimes mild cases are observed lasting from a day to a week. This physician, who at the Orphan Asylam of Stockholm had many opportunities of observing the malady, states that the mild cases begun with fever, sommolence, and twitchings during sleep. In most instruces there were offer symptoms, especially during skep, such as reallocaness, grant heat of head, changes in the colour of the face and in the sensibility of the body. In a few of the milder cases slight convolving spanss were noticed, with rigidity of the limbs and seek, strategous, and dilatation of the pupils; but in such cases these symptoms seem shappeared. In all the spoistmers which cause under Dr. Medin's observation such mild cases were the exception, and a large proportion of the industs died. In the severer forms the symptoms did not differ from those observed in other children.

De Melin, like other observers who have had opportunities of studying this form of illness, speaks of a presentation of a less type, occurring without nervous symptoms, so being frequently present in epidemics of corebro spend fover; and holds with them that in such cases, the infective material attacks the lungs in place of the cerebral membranes. Still, meningine may be present in such cases, although it gives rise to no symptoms; for in some instances where during life the symptoms were exclusively pulmonary, influmnation of the cerebral and spinal meninges was discovered on post-mortem examination of the body. Besides preumonia, peri- and endo-cardina, pleurisy, parenties, and purulent effusion into the joints may be complications of the discose.

The duration of the attacks is very variable. Death may take place in five or six hours in the next malignant forms of the distemper. In other cases the illness may be prolonged for one, two, three, or four weeks, or even longer. Convoluscence is always slow, and is often intermettent. A profound debility, betting for a long time after the fever is at an end, is one

of the characteristics of the mulady.

Dispassis.—Every case of rigid retraction of the head in a child is not one of cerebro-spinal fever. The symptom is the consequence of a basic meningitis spreading to the cereical portion of the spinal cerel; said it may therefore be present in any case where the membrance of the brain are the seat of inflammation. It is not uncommon in the course of a tubercular

meningitis

Corebro-spinal fewer not only gives rise to severe local symptoms, but is also accompanied by more general phanomena indicating a preformal constitutional affection. Its epidemic form, its violent and aloupt onset, the extreme disbility which is invariably present, and the petechial such remove the disease from the list of purely local disorders, and amply justify its being ranked amongst the specific fewers. The disease was at one time hold to be merely a form of typhus fever complicated with meningitis; but the difference between the two diseases are neither insignificant nor few. Cerebro-spinal fever prevails equally amongst the rich and the poor; it puricularly affects children, and is very fatal to them; it runs a rapid course, often counting death in a few hours; its temperature as a rule is little devated; the rapidity of the pulse is moderate, and when the fever is high, is not increased in proportion to the degree of pyrexis (undeed, according to some observers, it does not become rapid until the temperature falls); lastly, retraction of the head is one of the most common symptoms.

Typins loves "fover housts," and soldom attacks the well-to-do; it mirely affects children, and it it do, runs in them as a rule an especially favourable course; its duration is longer, and even in the adult it rurely appears in the overwhelming and malignant form so often seen in cases of creshro-spinal fover; lastly, meaning its with retraction of the head is a rure

complication.

The diagnosis of cerebro-spinal fever is much easier in the milat of an epidemic of the disease. The abrupt and violent caset, the serere pain in the bund and spine, the ventiting, the retraction of the head, the general super, and the petechial and other cruptions—this continuion of profound constitutional symptoms with nervous scritement followed by depression, is sufficiently characteristic, especially if at the same time, as often happens, the temperature is only moderately miscal and cares irregularly. In tases of simple cerebro-spinal meningitis the retraction of the head is not so extreme, and the stiffness and pain in the spine, the hyperesubscia, and the pains in the joints are seldon present. As a rule, too, the non-specific disease is preceded by prodromata and runs a less myid course. Still, this is not always the case, for in exceptional instances simple meningitis may prove that to a young child in the course of twenty-four hours. The fever in the latter is, however, always high, and the consulators are in most cases repeated and general.

It would be difficult to confound tuberrular meningitis accompanied by retraction of the head with coreliro-spinal fever. The hereditary tubercular tendency, the long produced period, the gradual onset of the illness, the more protracted and characteristic course, and the slow intermittent

pulse, would serve to distinguish the fultereder disease.

In infants under twelve mouths old the disease is very difficult to detect. It may, however, be distinguished by close attention to the course and symptoms of the illness; especially if the case occur in the midst of an outbreak of the malade.

Propeous.—In all cases of cerebro-spinal fever the prognosis is very serious. The discuss is especially intal to children, and the younger the patient the less hope can we entertain of a favourable termination to his

illness.

In bulies an arched and tense fontanelle, which shows the presence of profuse exadation and ordersa, is a very grave symptom. In all cases repeated convulsions and signs of severe nervous excitation, such as violent and incoment vomiting, intense cephalalgia and pain in the back, strong tetanic spanes; also early appearance of depression, continuous come or return of the stupor after a period of apparent improvement, and irregular breathing, are all signs calculated to earlie the gravest appealencious.

Trackword.—The disease unfortunately is little amenable to treatment. In all cases ice-bugs should be applied to the head and spine as long as the period of excitement continues. When symptoms of depression are noticed, the ice should be removed, or supplemented by the application of bot bottles to the feet, and the administration of stimulants by the mouth. Sometimes but applications relieve the sewere headache better than cold. The other spray has been used to the occipant and back of the neck, and is said to be of service. Large doesn of chloral sufficient to produce signs of narcotism have been recommended. All writers, however, speak highly of the subcatameous injection of morphia. For a child of three years of age one-twentieth of a grain may be used, and repeated every one or two hours until some sensities affect is produced; or four or five grains of chloral may be given by the mouth.

During protested containscence the todide of potassium must be given to further absorption of the exulations; and iron and tonics, with removal

to a dry bracing air, are of salue to laston the child's recovery.

CHAPTER IX.

EXTERIC PEVER.

Excuse or typheid fever is common in children. A large proportion of the cases formerly described as "Infantile Remittent Fever" were no doubt cases of this disease. Fortunately in young subjects typhoid fever usually runs a mild course. It would be, no doubt, too much to say that, properly treated and nursed, no child should die of typhoid; but certainly when placed from the beginning under favourable conditions for recovery.

death in the child from such a curse is very rare.

Industs and children during the first four or five years of life seem less ensceptible to the typhoid poison than at a later age. Perhaps, however, it is difficult to recognize the disease in such young subjects; and it is not impossible that many cases of fabrile diarchess in the young child may be cases of typhoid fever which have escaped recognition. Boys are more remarked affected than girls; and the fever seems to attack by perference previously healthy children. At any rate the patients who are brought suffering from the disease to the Children's Hospitals are generally well-nounshed, strong-looking little persons, with exceptionally good histories.

nounsland, strong-looking little persons, with exceptionally good historica.

Consulter.—It is now well known that enterir force arises as the consequence of absorption into the system of a specific poison which is genented by the decomposing discharges of typhoid patients. It is therefore largely distributed by the smarations from resopools and faulty drains. Warm weather, which encourages putrefaction, increases the prevalence of the ferer. Dr. Murchison has shown from the records of the London Fewer Hospital, that cases of enterir fever become more numerous after the warmth of summer, and diminish in number after the cold of the minter months. Thus, in August, September, October, and November, the fever prevails largely; while in February, March, April, and May, it is much less frequently seen. Whether the poison can be generated de now is a question which has been often debated and on which repeate opinions are held. It seems certain that the decomposition of ordinary freal. matter under ordinary conditions of almosphere cannot produce it; but it is probable that the specific poison may be generated from non-specific ordere under extraordinary conditions. At least, it is difficult under any other hypothesis to explain outbreaks of the fewer in country villages where the strictest search fails to discover any means by which the discuss can have been imported from without, and in which the same insmitury state has existed unchanged for years. There is no doubt that the discharges from the potical are highly contagious. The disease cannot, however, be communicated by the breath or by emanations from the skin. It is held by some that the discharges themselves are at first comparatively imoruous, and only become hurtful after patrefaction has begun.

The poisson enters the system by the process membrane of the lungs or of the alimentary canal. In most cases, no doubt, contaminated enter is the means by which it is conveyed. Several epidemies of typhoid fever in London, of late years, have been traced to milk to which water containing typhoid matter had been added. It is also probable that untrapped or faulty drains, allowing the efflavia of composis charged with the specific poison to penetrate into a house, may be another means of imparting the clience.

Our attack of typhoid fever does not necessarily protect against anoth-

er; and relapses are very common.

Murhal Anatomy.—The characteristic lexicu in typical fover consists in a swelling of the solitary glambs of the small intestine, of the agminated glands constituting Peyer's patches, and of the mesenteric glands in consection with them. The swelling is a pure proliferation of the callular elements, which are seen by the microscope to be much increased in numher. Some corpusches become enlarged and develop smaller cells within their walls. The hypertrophic change in the glands begins early, probably at the beginning of the discuse, and proceeds rapidly. It involves a certain number of Poyer's patches. These are fully developed by the ninth or teath day, and form thick out plates with abrupt where and an uneven, marourilated surface. Their considence is softer than natural, and more frable. The solitary glands may be unaffected; but they also often swell and foun small projections from the surface of the morous toombrane. After reaching their full size the glands, in mild cases, begin alowly to shrink. The newly proliferated cells undergo a fatty degeneration and are absorbed. The mesenteric glands also diminish is size by the same process of fatty degeneration, and gradually rooms their former dimensions.

In more severe cases the discussed glands, instead of undergoing healthy resolution, take on a further morbid action. Small points of ulceration appear on the surface of the patch. These enlarge and units so as to form an above which may cover the whole of the discussed surface. Sometimes, instead of alcerating at separate points, the nuccous membrane covering the affected patch slonglis over a larger or smaller area and separates from the tissue beneath. If the whole of the patch have been thus uncovered, the resulting alcer is eval, and has its longer axis in the direction of the small. Smaller alcers may be circular or sinsons. The solitary glands may also go through the same process, and lone small, round alcrers continued over the surface of the nuccus membrane. The edges of the ulcers are thick and sharply out, or even maternined; and the floor is formed by the submucous tissue, the muscular cont, or, in bad cases, merely by the peritoncal covering of the bowel.

After a time, a process of repair is set up and the ulcars begin to heal.

This favourable change seldon occurs before the end of the third week, and
the process of contribution occupies a variable time. Under favourable conditions it may be completed in two or three weeks, but it is often spread

over a longer period. The healing of the ulcer is not followed by any con-

traction of the bowel.

The morbid peacess above described attacks especially the glands in the neighbourhood of the flee-excal valve, and extends upwards for a variable distance. In some cases the solitary glands in the excum and part of the ascending color may be also affected. The deeper alcors are usually in the lower part of the think near the valve; and when perforation occurs, it is by rupture of one of these, whose floor is formed only by the personnal cost of the intestine. That this accident does not occur oftener is due to a local peritoratio having been set up, gluing the affected part of the bowel to a neighbouring organ. Children who sie from this disease die almost invariably from perforation of the bowel; but an unfavorable sulling to enterio fever is comparatively a rare assident in young subjects, in when the unhealthy action in the glands often stops short of alcoration.

Besides the special changes in the glands, the whole mucous natabrane of the bowel is swedlen and relaxed. The enlarged measuring glands solden supported in the clabt. They usually repidly undergo resolution as soon as the process of repair has begun in the intestine. The spleen is enlarged and congretal. It is dark red in color and is softer than natural. The killings are sometimes congested. In all cases of tephood fever the lungs are the seat of estarrh, so that the nuncous meanbrane of the air-trabes is red and congested, and the bronchial glands are

enlarged and vascular.

Symptoms - After exposure to the contagious poison there is a period of inculation varying from ten days to a fortnight, at the end of which the symptoms of the fever begin to manifest themselves. These are at fast very slightly marked; so much so, that it is sometimes difficult to fix the react time at which the illness began. In most cases, however, careful questioning of the purents will enable us to determine the first day of the disease. One of the earliest symptoms is frontal headache. It is common to be told that a child returned from school saying he had a headache, that he looked pale, was languid and could eat no dimer. There is fever at this time, but the child, not being supposed to be really ill, is not treated as an invalid. In other cases bendache is not complained of at first. The child is merely pale and listless, with some fever, and cannot be persuaded to eat. For the first few days little else can be discovered. The tongue is couled with a thin, white far, through which red popills project. There is often slight redness of the throat. The bowels are either confined, or one or two loos, rather offensive, shools are passed in the twenty-four hours. The child is drower, but sleeps restlessly, although without deissima. He generally complains of his head, and often of aching pains about the hody and limbs. Sometimes there is reasting after food, and there may be triffing epistasis. Cough is a more or less constant symptum, but varies greatly in amount. Usually it is insignificant at the first. During this time, unless medical assistance be summoned, the patient is soldens confined to like bod, but is dressed in the morning as usual. Indeed, in mild cases, children will often walk considerable distraces to the out-patients' room of a hospital, for the muscular weakness is much less marked than might be anticipated.

So far then the symptoms are vague; and if it were not for the decided character of the pyrexia, there would be nothing to help us to come to any conclusion as to the nature of the illness. It is only at the end of the first week that more characteristic symptoms are observed. About the sixth or seventh day the spices begins to enlarge. The organ can be felt to project inward towards the nobile line from under the cover of the ribs. He texture is soft, so soft, indeed, in many cases, that the enlargeness can be only detected by a practised finger; and it appears to be tender, for pressure over its substance usually produces some manifestation of discomfort. Tenderness can generally be noticed at this time over the whole helly, and is not confined to the region of the spices. The helly is now a little scodies; borleoxygmi are frequent; and garging may be often felt on pressure in the right alice force. This, however, is a symptom as often absent as present. The bowels are relaxed in the misjurity of cases, although, as a rule, only moderately so, and the stools exhibit the yellow other "pen-scorp" appearance which has been so other remarked upon. Still constipation is a more common phenomenon in the child than it is in the adult, occurring in at least out-third of the cases.

The leadache now usually subsides, and the patient begins to have slight delirium at night. He asks constantly for drink, but soldon shows any disposition to take food. His expression at this time is shell such heavy, and he lies quietly on his back, often with a dull flush on his classes, taking little notice of what passes around him. By the end of the first week the fever has reached its maximum. The skin, however, although generally dry is not always so, and there is occasionally a tendency to perspiration. The breathing is quickened, and the frequency of the pulse is increased. There is no constant relation between the pulse and the heat of the body. The pulse may be only incidentely quick with a high temperature, and its rapidity undergoes frequent variations. (Thus, Edith, H——, aged thirteen, on the eighth day at 0 s.m.; pulse, 86; respiration, 36; temperature, 101.8°. At 0 a.m. on the following morning: pulse, 100; respiration, 36; temperature, 100.8°.) By the sud of the first mesh the cough becomes properties, and may assure such prominence that a long affection is expected; but only dry rhonchus, with perlangs an occasional coarse bubble, is heard about the chest.

After the eighth day the typhoid eruption should appear. In children this symptom is sometimes absent; but careful inspection of the class, abdomen, and back will generally discover a few—it may be only one or two—of the characteristic spots. Sometimes they can be detected upon the limbs. The mak appears in the form of small, slightly elevated, lenticular spots of a delicate rose tint, varying in size from half a line to a line and a half, and disappearing completely under pressure of the larger. Their number wires, but they may be very numerous. These spots come out in successive coops, each one listing two or three days. If sensity, they have to be searched for with great care, especially when the back is examined, for here, on account of the general congestion of the surface, they may not

he readily seen.

In this the second week of the illness arceach day passes the child assume to become duller and more indifferent. He is drower and sleeps much during the day, but at night may be more restless, and sometimes he tries to leave his bed. His weakness has now become more marked. The pulse is quick and feeble; and towards the end of the week measular framous and twitchings may be noticed. The belly is much swellen and assumes the characteristic burrel shape. The looseness of the bosed continues, or is replaced by constipation, and sometimes—although this is sure in the child—the motions contain blood. At this time the locar-sounds become feeble and soft to the ear, and there is often a prolongation of the first sound at the apex, or even a soft systolic marmon. On the other hand, in old standing cases of surding disease a marmor previously heard may be lest as the heart's action becomes enfectively, only to reappear when the strength is restored.

In the third week of the illness the fever usually begins to diminish. In the mild cases the temperature becomes natural as early as the fourteenth day. If it persist, its mean is lower thus before, and the morning temperature may be almost normal. The feebleness of the patient is now antiferently pronounced, but as the days pass by his exceptons become more favourable. He groves less heavy and betarget; the swelling of his

belly diminishes; the spleen retires under the ribs; diamtion of it had previously existed, ceases, and the notions become more natural; and as the tengue cleans, the child begins to show some dissatisfaction at Issing still restricted to liquid food. As the fever subsides, the pulse often becomes intermittent, and is very soft and compressible. When the fever is at an end the child is left very weak in the mildest cases, and he only slowly regains his strength. In bad cases the prostration is very great, and the child has to be pursed through a profracted period of contalescence. Sometimes ordern, more or less general, is seen as a consequence of the impoverished state of the blood.

The above is a sketch of the ordinary course of enteric fover in the child. There are, however, many variations in the symptoms, and it is desirable therefore to refer again to some of the principal phenomena.

The Dipastre Occase.—The torgue in mild cases remains most throughout the whole course of the illness. It has a delicate conting of grayables, through which the papille are seen to project. The tip and odges are only neckentely red. Thirst is often a marked symptom, and liquid food is taken readily to satisfy this craving for finid. Appetite is generally lost, but not in every case. A little boy in the East London Children's Hospital complained to me on the sixth day of the disease that he was hungry, although his temperature was then 195°, and his torgue was thickly furned with scales on the lips. His mind was quite clear. If the symptoms are severe the torgue generally becomes dry in the course of the second work. It may be fissured across the dorsum, and the lips may be cracked and blackened. Sees threat is a very common symptom charing the first few days, and there is some little reduces of the fances. Vomiting is frequent at the beginning; occasionally it recurs later and may then give trouble.

The swelling of the abdomen is due to accumulation of flatus through decomposition of food and mubility of the howels to expel their gracous contents. This loss of contractility is the consequence of lack of nervepower or of local injury from alceration. Consequently, if in the third week of illness there is deep ofceration of the intestine and great bodily prestration, the distention of the belly may be extreme. The amount of abdominal tenderness varies. In the mildest cases it may be absent. When present it may be local, limited to the splexic region and the right fline tossa, or may be general over the abdresse. It is sometimes a well marked symptom, the slightest touch being productive of great pain, and this in cases where there is no reason to suspect the persones of peritoritis. The howels may be confined throughout, or loose throughout, or constipation may alternate with a mild diarrhose. It must be remembered that laces-nessed the bowels is due not to the electration but to coexisting entern. If catarrh be insignificant or about, the bowels are not relaxed. As a rule, in children the looseness is not extreme and is easily controlled. The relaxed motions always assume at one time or another the "pen-cop" character; they have an alkaline reaction and a faint offensive smell. Hamorrhage from the boyels to any amount is rare, but small black clots of blood may be sometimes found in the gromous matter at the bottom of the stools.

The error is at first scanty, with a high density. It contains an excess
of urea and uric axid, but is poor in obligates. Later it becomes more
copious, the specific gravity falls, and it may contain a trace of albumen.
During the height of the ferer there may be retention of urine, with distention of the bladder and tenderness over the pulses. Sometimes the
eatherer has to be ampleved. There is no gravity about this symptom,
and it need cause no anxiety if care be taken to empty the bladder by

degrees. The distention is due to loss of contractile power of the muscular cost. If, then, a greatly distended bladder be ambienty and completely emptied of its contents, the organ contracts importedly, and a certain amount of sir enters and causes great irritation. An obstinate systits may be produced in this way.

The pulse is quick us a rule, but sometimes for a time sinks in explicity although the fever continues high. The frequency of the pulse is not, as has already been stated, any trustworthy guide to the degree of fever; nor, as taken at a single examination, is it necessarily any test of the severity

of the silners.

The reporations are increase, and there may be slight disturbance of the normal pulse-respiration ratio without any pulmonary complication being present. (Thus John H.—, aged four years, sixth day, 4 r.m.; temperature, 103°; pulse, 120; respiration, 46). If apulmonary complication actually arise, the breathing increases in rapidity and there is lividity of the face.

The shin may be moist at times during the course of the disease, and towards the end of the third week, especially if the forer has subsided, there may be copious sweating. Sudamina then appear on the chest. The abundance of the rash runes greatly in different cases. It may be very expicus or completely absent; but these extremes bear no relation to severity or mildness of attack. It is well to be more that fresh crops of rose-spots may continue to appear for a week after the temperature has fallen to the normal level. I have noticed this on several occasions. The facies is important. The child seldom looks very ill in the early stage; and even later, unless the abdominal mischief be severe, it is complicant for his face to wear the anxions largered look which is so common in many other serious diseases, and forms such a striking feature in neute tuberculous. In ordinary cases the expression is more stupid and lattices than anxions.

The querial severe may be affected. Deafness is common. Epistaxis is a frequent symptom, and may be repeated again and again. The conjunctive look red, and the pupils are large. The bestacles in children is soliton very severe. It couses about the end of the first week, when the delaines begins. Senetimes corried neuralgia is noticed after the second week, and every mercement of the neck may be accompanied by pain. Deliring is the rule, beginning towards the end of the first week. Sometimes from this cause other children try to get out of bed and are noisy. Consultates may precede death in fatal cases; but typhoid fever, unlike many other febrile complaints in childhood, is very rarely substret in by a convalue attack. Still, a form of disease is neally described in which the early symptoms are those of high nervous excitement. The child is convaled and has marked delains. I here never met with a case of this form of typhoid fever in a young subject.

The pyccinic, like most forms of febrile movement in the child, is remittent, but the degree of remission varies at different periods of the discuss. In the second week there is, as a rule, less variance between the maximum and minimum temperatures than at an earlier or a later stage of the complaint. To test the bodily heat with any sunctaons, the temperature should be taken every three or four hours, both day and night. Very false conclusions may be drawn from a merely disgral use of the thermometer, for the mercury is not necessarily at its lowest point at 8 or 9 a.u., nor at its highest at 6 or 7 o'clock in the evening. Again the minimum temperature may be non-febrile, or even subnormal. (Thus, in the

case of Lilly F——, aged cloven years, a patient in the East London Children's Hospital, the temperature during the morning hours from 8 o'clock to noon was subnormal after the minth day. It was often as low as 97°, and yet this was an undoubted case of typheid lever. In the evening the heat was 102° or 103°.) It is difficult to lay down a rule in a nexter which is subject to such endloss variety; but perhaps the minimum temperature is reached more often between the hours of 10 a.s. and moon than at any other time, and the maximum shortly before midnight or in the early morning hours. In the third week of the disease the remissions generally become very marked, and the minimum registered is often little higher than a normal temperature. This is especially noticeable towards

the end of the week.

During the first few days of the fever it is rare for the child to be under skilled observation, and a record of the temperature at this time is not easy to obtain. Occasionally, however, a hospital patient, admitted for some chronic complaint, sickens of the disease. Such a case occurred litely in a little girl, aged nine years, who was being treated for lap-joint disease in the East London Unitlaten's Hospital by my colleague Mr. Parker, and was transferred to my care on the outlessek of the fever. The child, whose temperature had been normal, complained of headache at 2 a.e. Her temperature was then found to be 102.6°. At 10 c.u. it had fallen to 100°. On the second day, at 6 a.e., it was 10°; but rose gradually, being taken every four hours, till 6 s.e. when the thermometer nursed 103.2°. It then fell stablenly to 90° at 10 s.u. On the third day at 10 a.u. 2 was 102.4°; at 2 s.u., 102.4°; at 6 s.u., 101.8°; at 10 s.u., 102.6°. After this it varied between 101° and 103.8° in the twenty-four hours, until the middle of the thard week when it ness rather biglier.

In a case kindly communicated to us by my friend Dr. Gee, the temperature in a little girl under his care was 100° on the first day at 2 a.u.,

and at 10.30 r.u. it was 103.5"

In a case published by Dr. Ashbe, of Manchester—a little girl of nine years—the temperature was 100° on the first evening. On the second day: norming, 29.4°; evening, 191.8°. On the third day: morning, 160.4°; evening, 160.4°. Fourth day: morning, 161°; evening, 168.4°. From these three cases it appears that there may be great variations in

From these three cases it appears that there may be great variations in the degree of pyroxis at the beginning of the discuse. In my own case the temperature reached its height on the second day at 6 a.m.; but dur-

ing the first two days the variations were very great.

The duration of typhood fover in from four-teen to twenty-six days as a rule. The temperature often falls in young subjects at the end of a fort-night; and sometimes, although very rarely, may become normal at a still coatier date. The possibility of so short a duration for the fover has been

doubted, but that it may occur is proved by the following case.

A little girl, aged nine years, was perfectly well on September 14th.

On the following day, the little, she complained of chilliness and frontal
bendacks. That night the skin was noticed to be hot, and for the next
week the shild was spathette, largued, and feverish, complaining of bendsche and abdominal pain. She dad not comit, and there was no blooding
from the ness. The child was seen on the 224. Her temperature was
then 102°, and a rose-spot was noticed on the abdomen by the lense
surgeon. On the 23d (much day) she was admitted into the keepital.
The abdomen was then moderately distended; the splem could be felt two
fragers breakth below the ribe; no spots were to be seen; the temperature
in the evening was 102.6°.

After this date the temperature was never higher than 93° and a fraction; the child looked and expressed herself as well; the spleen quickly retired tuder the ribs; the appetite was good, and the patient complained much at being restricted to higher food. On October 5th, the temperature laving been normal for twelve days (with the exception that on one occasion, in the course of September 27th, it cone to 100.3°), and solutionnal for air, the child was put on onlinary diet. Two days afterwards the temperature rose to 102°, the spicen began to enlarge; rose spots appeared on the abstence; and the patient passed through a well-marked relapse of typhoid fewer which instead the usual nine days.

In this case the early resention of the pyreain segmed to exclude typhoid fever, and as the temperature continued low, a ment diet was allowed under the alea that our first impression of the illness had been a mistakes one. The prompt occurrence of a typical relapse, however, at once re-

moved our doubts as to the mature of the primary attack.

In some cases the temperature remains high after the usual time of falling at the end of the third week. In many cases this is due to progressive alcerative enteritis. Indeed, Dr. Goe lays it down as a rule that when pyrexis and exterio symptoms had longer than twenty-six days this is the cases of the prolongation of the discuss. He also suggests that "submittent relapse" may be an occasional agent in producing the same result.

Douth from the intensity of the general disease, no common in the adult, is very care in early life. In very exceptional cases, however, the diarrhon may be excessive; the temperature may rise to a high level; the pulse may be frequent, feeble and dicrotous; the obdomen may be smallen and tympanitie; the child is delirious, then comstone, and dies with a temperature of 108" or 100". Still, although this type of the disease is occurrently met with in the child, it must happen to few practitioners to most with such cases. When elablica die from typhoid fover, they die almost invariably from perforation of the bevel and general peritonitis. The rupture occurs in the floor of a deep ulter and takes place sprite suddenly. It is followed by an owage of gen and of the fluid contents of the intestine into the peritoneal cavity. Immediately, the ablomen becomes distended, and there is intense pain and tendernoss. Sometimes there is remiting, but the patient in any case sinks into a state of collapse with dusky haggard face, cool purple extremities, and small rapid pulse. Although the surface of the body fools cool, the internal hunt remains high (193-194'). The respiration is thorners. According to Nicmayer, sudden disappearance of the liver duliness, on account of that organ being separated by the temponitis from the abdominal wall, is one of the most certain signs of peritonitis from perforation of the based This accident does not often happen before the end of the third week When the peritonitia is general, it is almost invariably fatal, and sleath is sometimes preceded by an attack of convulsions. If the intestine have been previously matted by local influentation, supture of the floor of the ulter may not lead to such arrious consequences. In such a case when perforation occurs, the extrawarbed contents of the bored remain encested. and the resulting peritonitis is limited to the neighbourhood of the feston. In the end the abscess thus formed generally makes its way to the surface and discharges its contents at some point of the abdominal wall.

Other complications which give rise to discomfort or danger are inflammation of the parcial gland, or of the middle say, breachests, phenricy, passenceds, and estarchal passenceds. In one case—a boy agod thirdeen, under my care in the East London Children's Hospital—an extensive

plastic pericarditis areas during the third week of illness. Bedacres rarely occur unless the child is greatly reduced by protracted illness; but boils and abscesses are not uncommon. Ucceration of the laryus has been described, but must be very rare. Another rare complication is throm-

bosis of the yeins of the lower extremities.

After the fever has subsided, the temperature usually remains subporreal for some time. Not unfrequently, however, after the lapse of a few days, the child is noticed to be feverish again. These economy pyroxins are very common. They may be due to a real religion; to the presence of some irritant in the bowel, such as hardened feed matter or undigested food; or to some fabrile complication which may be called accidental, as an abscess.

Real reliques are far from uncommon. They begin after a variable interval-four or five days, or longer-and seem in many cases to be determined by injudicious feeding in the stage of early contribusorice. The temperature rises; the spheri again enlarges; fresh spots appear; and the howels may be again related. Usually the symptoms are milder than in the primary attack and last a shorter time. The average duration of a relagor is time days.

Constipation and the irritation of the bowel by hard ford masses is a common cause of accordary pyrexia. The temperature usually rises to 102' or 103', but may be ligher. When the irribut has been removed by a copious injection, the pyresis at once disappears. These attacks of teasporary elevation of temperature may recar again and again in the course

of convalencence, but need occurron no anxiety.

Convalencence from typhoid fover is often techons. The child is left weak and low, and mutrition may not at once be re-established. It is a remarkable fact-to which attention has been drawn by Dr. West-that the patient is enfectled intellectually as well as physically by his illness. For nome weeks after the fever is over he may remain dult and miliferent, taking little interest in pursuits and amusements which formerly delighted him. A child of three or four years of age may seem to have forgotten how to talk; and the percistence of this mental weakness for some time after the strength has been restored is often a cause of great anxiety to the putient's friends. Such anxiety is, however, groundless, for the return of

mental tone at no long interval may be considently predicted.

These cases appear to be due sometimes to defective action of the kidneys. In one case which came under my notice the child (a boy of seven) was left after typhoid fever in an apathetic, stopid condition, taking no notice of anything, and never speaking even to make known his natural wants. He appeared to be in a state of great weakness, and had occasionally nervous sentures in which he became quite stiff, and seamed to be anconstions. His skin was dru and excessively inclustic; there was no discoverable disease of any of his organs; his temperature was subported. At first be had a slight trace of orderns of the legs, but this quickly passed off. His urine never contained albumen, but its quantity was small. For a long time the boy passed no more than ten or taylve comees in the twenty-four hours, with a specific gravity of £015. The exerction of solid nutter by the kolmeys was so evidently deficient that directics were on dered, and the boy was forced to take a larger quantity of third. Under this treatment he scor began to mend; his urms became more repleas with a higher density; the elasticity of his skin returned; his nervous seizures ceased; and his strength, wental and bodily, rapidly improved.

A child with any disthetic faint may have les predisposition strength-

ened by his illness. Tuberenlosis sometimes occurs; and seredulous ten-

denotes may receive a distinct impulse,

Dispussiz.—On account of the negative character of the symptoms at the beginning of the illness, enteric fever is often difficult to recognize in the early stage; and even at a later period the nature of the complaint must be sometimes a matter of doubt. Still, the disease is one of such frequent occurrence that we should always remember the possibility of its being present, and should never omit in a doubtful case to make inquiry as to the existence of the disease in the neighbourhood. The beginning of measies, scarlating, and variola is sufficiently distinctive to prevent their being confounded with this disorder, and moreover, the absence of the specific eruptions of these complaints will serve for their exclusion. A high temperature on the second shy in a child who suffers from nothing but an ill-defined malaise is enough to give grounds for suspicion. If, as the days pass, no other symptom develops itself, our suspicious are materially strengthened; and when at the end of the week, enlargement of the spleen with swelling and tenderness of the belly can be detected, especially if there is also looseness of the bowels, there is hardly room for further hasdation.

Acute tuberculosis may present a very close resemblance to enterior fever in the child, especially as we constinue see a rose spot here and there on the bodies of tubercular children which, except for being rather larger than the typhoid spot, and perhaps a little less delicate in colour, may be, and indeed has been, mistaken for it. In both tuberculosis and enterior fever distribute may be a prominent feature; in both there is fever; and in both the general symptoms may be very indefinite. Often, in these cases we cannot decide, but must want for time to relieve our uncertainty. But in many cases we may renture upon an opinion, for in tuberculosis the absence of any definite time of beginning; the less elevated temperature, the boddy heat being rarely higher than 101° in the evening; the distressed expression of the patient; the absence of inflation of the abdessen, and the autural account the special rare all points in which that form of illness differs from typhoid fever, and may serie to help us to a conclusion.

Sometimes enteric forer may be mistaken for tubercular meningitis. The illness may begin with decreases and sickness; the healache may be screen and provoke cries from the child each as are common in the intracrunial inflammation; the voniting may persist, and the bowels may be obstimately confined. Still, the belly is distended, and has not the dought, flaccid condition of the partetes so peculou to tubercular meningitis; the pulse, until contubescence begins, is not slow and intermittent; the requiration is not sighing; the pupils do not become unequal, and there is no squint. The temperature, too, is much higher in the case of typhoid fever, for in the earlier stages of tubercular meningitis the hodily heat is scilled greater than 101°. Later, near of the symptoms of the third stage of tubercular meningitis can be discovered.

Acute gustric enterm, accompanied as it is in a redulous children with peresis, may cause some emburassment, but here the temperature is less high than in enteric fever, and does not undergo the same alternations; there is no distention of the abdomen, and so enlargement of the spicen. Still, in many cases, before the fever subsides on the ninth or tenth day, we cannot say positively that we have not to do with the more serious

discour.

When the purging is severe the case may be confounded with one of inflammatory distribute, and it is possible that in young children under

three or four years of age the metake is often made. I think, however, that the shorter course of a non-specific manu-ententis, the severity of the purging from the first, the laggard aspect of the patient, and, if the discuss hat long enough the absence of splenic enjargement, of the may risk, and of the signs of palmonary catarris, should be sufficient to furnish a distinction.

Simple or bibercular electricism of the bowels with enlargement of the measurers: glands may be also mistaken for enterior fever. But in these disorders the temperature is less electrical than in typical fever, and the history of the ribers is very different. Their course, also, is very much larger. There is, busides, absence of the rish, of the splenic enlargement (unless as may happen, there is tobercular disease of the splenic and of the signs of pulmonary enterth. Further, in tobercular ulceration the large are generally the seat of consolidation and the constitution is extreme.

Chronic tubercular peritonitis, with its rough hursh skin, its pseudofluctuation, and the caseous masses to be felt on pulpation of the abdoman,

can searcely be confounded with enteric fever.

Lastly, the distinction between typhood and typhus fevers is now sufficisually established. In the latter disease the onset is always alongs, the such, abundant and quite different is its appearance from the rosy typhoid spots appears on the fifth day; the face is dusky; dromainess and stapor are early symptoms; and the end—whether favourable or the reverse—

consen im a nucleon exists.

Proposis.—It has been already said that comparatively few children die from this disease; but small as is the percentage of mechality, it is greater than it need be. This is partly due to the way in which the disease begins, and the mildness of its early symptoms making diagnosis doubtful. It is also owing in part to the classacter of the early symptoms, and the abuse of decreate reasonless. A child is found to be peoply; he vomits and complains of headachs. Immediately is is treated to a dose of entered or other specient; and as the symptoms are not found to be subsent by this measure, the dose is repeated, perhaps several times. There is no doubt that such treatment is excessively injurious; and in hospital practice the cases which terminate fatally generally have a history of active sungation having been adopted before admission.

Horsever severe the symptoms may be, we may look forward hopefully to the issue provided perforation has not excurred. Children respond well to stimulants in typical fever; and a patient who is soon stupid and drower and profoundly depressed on one voit, may present a very different appearance on the next under the free use of bounds. I think even muscular tremors have not the same unfavourable meaning in the child that they have in the adult. Still, if the longer quivers when protruded, the lower jaw trembles when the mouth is open, and general tremolousness of anovement is pronounced, we have reason to fear the presence of a deep alcountre lesson in the intention. Our apprehensions are strengthened if at the same time the belly is much distanced, and the temperature remains persistently elevated after the end of the third week.

In such a case the danger of perforation is imminent.

If perforation take place, the prognosis is most grave; but even in this strait death is not absolutely certain. If the colleges which follows the extravasation be quickly recovered from, even although considerable tyropositis, pair, and tenderness remain, we may hope that the peritonitis has been localised by intestinal adhesions, and that further improvement

may take place.

Frencherel—In every case of typhoid feror, if there is any reason to suppose that the disease has been contracted in the house, the drains should be thoroughly examined at the earliest opportunity, and every care must be taken to prevent the entrance of sever-gas into the passages. All soil pipes should be ventilated: waste-pipes should be cut off from direct communication with the severs; caterna supplying water for draining and croking should be entirely separated from those whose purpose is merely smithery; and the water itself—unless its purity be above suspector—should not be drank without having previously been boiled and filtered.

The treatment of typhoid fever consists mainly in careful and judicious marring. Sir William Jenser has insisted strongly upon the absolute treewity in this complaint of perfect rest. The shild should be confined to bed at once, and if the attack has occurred at a distance from his home, it is better that he should remain where he is, than run the risk of increasing the severity of his illness by the fittigues of a removal. Patigue not only exhausts nove-power, which is already reduced by the fever, but it also increases destruction of tissue at the same time that it clocks almination by the excretory organs. The bodroom should be a large one, and the nir must be kept as pure as possible by judicious ventilation. Its temperature should not be allowed to rise above 65". The patient should be lightly covered and not overloaded with bedelothes. There is, however, one procuution which it is expedient to take. As in all cases where the mucous membrane of the topols is the sent of caburds fluined in the shape of a flamel bandage should be applied round the belly so as to avoid the risk of chill. All discharges from the body must be at once disinfected before being removed from the room, and linen, etc., will by such discharges must be subjected to the same disinfecting process before being maded. If there be reason to suspect the purity of the water-supply, none should be used for drinking purposes without previous boiling and filtering. This, however, the child may be allowed to drink without stirst, provided too large a quantity be not taken at once. A free supply of water assists the depurating action of the skin, kidneys, and Imags; but distention of the stomach by too much fluid is prosocutive of musea and flatulence. For this muson effernmening dranks are to be amided; they are upt to distend the stomach and cause uneasiness.

The question of dict is a very important one. The old plan of " starting the fever" and reducing the patient has been fortunately abandoned, but we must not dy to the opposite extreme and overload the stomack with food in the hope of supporting the strength, however digestible and well selected the food may be. Farinaccous matters, or account of their tendency to ferment and form acid, are better spoided. Fruit for the same reason is cut of the question. It is better to restrict the flict to most broths made fresh in the house, and to milk. The broths may be flavoured with veretables, but must be carefully strained. The milk should be diluted with an equal quantity of barley-water, so as to split up the curd and present its congulating in the stomach in large lumps. Masses of hard card are a frequent source of irritation, and may excite restlement and alsdominal pains. They may also, perhaps, increase the diarrhos. The quantity of food to be given at one time should never be left to the discretion of the attendants. Nourishment should be administered in prescribed doses at regular intervals. the quantity and the length of the interruls to be decided by the ago of the putient and the famility with which the treal can be directed. Names, restleaness, racitement of pulse, incrosse of fever, and flusteng of face, are signs that the digestive organs are

being taxed beyond their powers.

The question of atimulation is clearly alized to that of food. Stimuhade must not be given too early. They are useful to strengthen the artion of the heart and increase nervo-energy, but are seldom required before the end of the second or beginning of the third work of the disease. Even then, they should be only given in sowers cases where the heart's action gives sees of failing, and there is marked delicious or great muscular possinstine with tremer. Tremer, "out of all proportion to other signs of nervous postertion," is, in the opinion of Sir William Jenner, evidence of heep destruction of the howel. In these cases alcohol is of the atmost The signs connected with the heart which may be taken to indicate the necessity for stimulation are diminution or suppression of the impulse with feebleness of the first sound. The effect of stimulation should be carefully watched. If the fever diminish, the tongue and skin get or remein moist, the pulse and respiration become slower and fuller, and the mind eleaner, we may know that we have benefitted our patient. If, on the contrary, the temperature rise, the heart's action become feelier and more frequent, the delirans increase, and the child get reatless with mability to sleep; or if he become duller and seem sinking into a countose state, we may conclude that alcohol is acting injuriously, and that it must be discontinued or given in smaller quantities

In typhood fever, as in all other febrile diseases, it is important to watch the temperature and regulate it. If, for instance, with a temperature of 165°, we find restlessness and excitement with wakefulness, the child abould be sponged over the whole body with tepid or cold water. This lessens fever, calms irritability, and induces sleep. More than tepid or cold sponging is seldous necessary. If, between, the temperature be not appreciably lowered by the sponging or rise again immediately, the child may be placed gently in a bath containing water at 70°, and be kept immersed for ten, fifteen, or twenty minutes. It is well to continue the both until distinct shivering has been produced. The child must be then removed, wiped dry, and returned to his bed. A stimulant may be given at this time if thought destrable. The cool both should not be used unless there is a real necessity for it. Children can bear a continued high temperature better than obtain persons; and if there is a daily remission, as

occurs in most enses, more sponging will do all that is required.

Delirion is scarcely sufficiently violent in children to require treatment—at any rate in ordinary cases, and headache is seldem a trouble some symptom. If it should be so, it is usually relieved by cold applications. Steeplesman may be generally relieved by the topid sparging above referred to. If necessary, a drought containing brounds of pota-

stum in combination with chloral may be given.

Distribute may sometimes require remedies. In every case where the stocks are too frequent and watery we should examine them for card of milk. If this be present, the amount of milk taken at one time must be reduced. We should also take care that the child does not drink finish in excess, and if necessary his drink must be given to him in smaller quantities. When drups are required to arrest the purging, chalk and catecher should be given if the motions are frethy. If they are strongly alkaline, dante sulphuric acid is most useful. In the later period, when there is alcoration of the bowel, bismoth in large doesn is industed. Hemorrhaps from the lowels is a comparatively rare symptom in the child and selden requires treatment by drups. If necessary, however, gallic acid and hiller

sulphuric acid may be administered with small doses of epium. In such a case the child should on no account be allowed to raise himself from the recumbent posture even to relieve the bladder or the bowels. It is well also to give him his food in small quantities and in a concentrated form. Strong back-essence, well icad, and good meat jelly should be employed; and but little milk should be allowed, for fear of irritating the

If perforation and peritoratis occur, opium should be given in small doses, but frequently, so as to produce some of the early physiological effects of the drag, such as drowniness and tendency to contraction of pupils. In my experience opium is in such cases of small value unless pushed to this extent. The helly should be also smeared with an oint-ment recoposed of equal parts of extract of belladouns and giverine, and be kept-covered with hot finseed meal positions frequently renewed. The food in these cases also must be concentrated and given frequently in small quantities. Brandy and egg will be required to sustain the strength.

During the period of convalescence careful feeding is still necessary, for errors in diet at this time are a frequent cause of relapse in the fever. I have always made it a rule to allow no solid food until ten days have passed after the final full of temperature. But even then the usual diet

of health should be only slowly returned to.

In order to prevent relapses Immerman recommends, in addition to the utmost vigilance with regard to dist, the daily administration of salicylate of sods in full doses; beginning directly the fover subsides, and continuing the use of the drug for ten or twelve days. The after sussuin and weakness must be combated by iron and good food. Change of air to a dry bracing place or to the seasole is very useful.

CHAPTER X.

DOPUTHERIA.

Discreming is an acute confugious disease which, on account of its prevalence, its provity, its consequences, and the frequency with which it is met with in the child, takes a prominent place amongst the disorders of early life. The disease induces great anomal and prostration, and is characterized anatomically by inflammation of various nuccus surfaces and the formation on them of a more or less tough and leathery false memberne. The inflammation often spreads to some distance from its point of origin, but at first is usually confined to a compositively limited area. The scat variety according to the part in which the chief local expression of the disease occurs.

When the inflammatory process attacks the laryux the maledy is called membranous croup, and this was long held to be a distinct affection. Whether all cases of membranous croup are diphtheritio in their nature whether a false membrane can be developed in the air-passages must from the diphthentic poison—is a question upon which publishers in this country are still divided. That membranous eroup more in many coses from this cause is underiable. Instances have been met with in which diphtherix has attacked the planyux in some numbers of a family and the luyux in others. Thus, Dr. Woodman found membranous laryugitis in two infants, aged respectively eighteen months and two mentles, while others of the family suffered from fulse membrane in the month and pharynx. Dr. Wilks has som in different immates of the same house the disease remain confined to the throat, or spread thence to the keryan, or begin in the larges; and Trousseau refers to a case reported by Dr. A. Guerard in which a little girl died of laryngeal erosp, and other members of the family suffered immediately afterwards from pseudo-membranous pharyngitis. Moreover, it is admitted by the best authorities that the laryngeal false membrane has exactly the same armtonical characters. whether it be due to the spread of a plaryageal diplitheria or one paimarily as a case of membernous eroup.

Advocates of the essential difference between the two forms of illness maintain that the character of the two diseases is not the same. Croup, they say, is a athenic disease, while diphtheria is asthenic. But acuse cases of croup are accompanied by severe constitutional depression and all the signs of profound general disease; while diphtheria is not invariably accompanied by symptoms of prostration. Indeed, one of the peculiarties of this affection is the occurrence sometimes of marked paralysis after

an attack of sore throat so mild as to be almost mericoked,

Secondly, it is pointed out that in diplother is the glands at the angles of the jaw are invariably enlarged, while in membraness group they are little if at all affected. But the largus has little connection with the su-

perficial cervical glands. As Dr. Morell Mackenzie has pointed out, in cancer of the hayax the cervical glands are not enlarged, while if the malignant discuss affect the pharma these glands are always involved.

Thirdly, the contagiousness of diputheria is insisted upon, while membranous croup is said not to be communicable by one child to another. But the risk of infection is in direct proportion to the amount of exadation, and the readiness with which the membrane can be detached and dispersed. In the glottis the membrane is very firmly adherent; in the planyax its connectious are much looser, and it is much more easily separable from the nutcous surfaces. Moreover, as Sir William Jenney has observed, the conditions in which the putient is placed vary greatly in the two cases. A child with dipatheria in its early stage is up and about, kieses his brothern and nisters, and has every opportunity of conveying the disease to there. A patient with membranous croup is kept in bed sport from the other children and esceptilly tended. Still, there is strong evidence. that, in spite of these hindrances to its really communication, membraneus group may be conveyed from one child to mother. Dr. Trend states that he has seen the laryngeal disease in more than one child of a family at the some time. Dr. Wilks believes that he has seen diphtheria begin in the house as a case of supposed membranous croup, and afterwards attack others of the immates in the form of diphtheritic pharmpitis. Dr. A. Guirard's case, already referred to, is another instance of the contagious ness and interchangeability of the two varieties.

Fourthly, albuminum, which is common in diplitherin, is said to be ture in membranous croup. But this is not altogether the fact. Moreover, albumen does not always appear in the urine at the beginning of an attack of diphtheria, but may be delayed for several days. Now the duration of fatal cases of croup is after terribly short; so that the points may

die before the albuminuris has had time to occur.

Lastly, purelysis is a not uncommon sequel of diphtheria, while in membraness crosp it is very rare. But it must be remembered that true membraness crosp is an excessively fatal discuss and comparatively few cases recover. Even as a consequence of diphtheria the occurrence of purallysis is carable in different epidemies; and taking the milder cases with the severer, the proportion has been estimated by Dr. Greenfield at no more than one in twelve. In complexcents from membraness croup the proportion who are likely to suffer from paralysis would, therefore, under

any circumstances be very small.

Prous consideration of the above facts and arguments the only conclusion to be drawn is that a large propertion of cases of numbraneus crosp are cases of larguaged digitalisms. It does not, however, follow that membraneus larguaged digitalisms. It does not, however, follow that membraneus larguaged in never due to any other cases than the dipidiscritic poison. The child's larguax is expectally prone to membraneus inflammation; and if, as has been positively stated, a true false membrane may be set up by burns, scales, and other irritants to the air passages, it is possible that the disease may occasionally occur independently of the dipidiscritic strue.

Diplotheria is met with both as an epidemic and as an endemic disease, and varies much in character and soverity at different times and in different localities. It may attack children who are apparently in robust localit, may arise in eachertic subjects, or appear as a wound of sovers general disease. Like typhoid fewer the disorder is apt to occur more than once in the same individual, for the protection is affords against a recurrence is by no means complete. Sometimes the second illness may be more severe

than the first, for a child who has passed safely through one attack may succumb to a second.

Counties. On account of the emceptibility to dightherm in early life. childhood may be considered to be one of the predisposity curses of the malady. Infants under twelve menths of age are not often attacked; but after that age and up to the fifth or sixth year the disease is frequently met with. After the seeth year it again becomes less connect, and is comparatively rare in the adult. Besides this natural susceptibility, there is probably in many cases a special enceptibility inherent in the constitution of the petiest. Sometimes whole families are cut off during an epidemic of the distemper. Sometimes successive children of the same parents full victims to the disease at various times and in different places; and in many mass this unfortunate predisposition appears to be a herelitary defect. Besides these general causes, special delicacy of the throat may render the child more sensitive to the diphtheritis poison, inclining him to take the discuse where a stronger subject would escape altogether. Also the prasspec of a catarrial condition of the fraces at the time of exposure to the unhealthy influence increases the Ekshbood of infection. The ecrofulous constitution has been said to induce a susceptibility to the dipatherite virus ; and there is no doubt that the subjects of this disthesis are, as a rule, keenly sensitive to all forms of zymotic posson.

Cold and moisture appear to have some influence in quickening the activity of the contagious principle, for the disease is common in country districts, especially in damp places, and is more provident during the winter

months than at any other period of the year.

With regard to the exciting causes: There can be no question as to the highly processes nature of the exadation from the affected surfaces, for the discharges have often communicated the discnae by coming into contact with a healthy interest membrane. The virus may, however, be also conserved by more subtle summations from the affected person; and it is believed that the contagions principle may be carried to a distance in the clothes of the patient himself after convalencence, or in the dress of a naise who has not herself suffered from the disorder. Indeed, all the surroundings of the patient appear for some time to be capable of communicating the disease. It is even stated that in certain cases a convalencent may be still the channel through which the dipatheritie virus is conveyed to exceptionally succeptible subjects, although a period of mouths has clapsed since recovery from the disorder; but in such a case it would be difficult to each do other and more recent sources of infection.

The poison may be drawn into the lange with the air or smallowed in contaminated unter; but much uncertainty exists with regard to the laws which govern the transmission of the infective matter. Oil compools and drains appear to preserve the contagions for a long time in a state of netwood virulence. but there is no proof that the poison can be generated sportanously from ordinary filth. The distemper may originate in a distinct under one set of conditions and be distributed under other and different conditions. There is no doubt that insunitary surroundings tend to favour the special of the discuse; still it is probable that other influences also regulate the diffusion of the infection; for when an outbrank occurs in any district, it is not always in the poccess and locat density localities—in parts, that is, where the discuss would be expected to be most active—that the largest number of cases occurs.

In many outbreaks certain faulty conditions, such as pollated extersupply, long standing accumulation of excrementations matters, and imper-

feet sewerage and dminage generally, are found to be common to all the dwellings in which the disease appears. These sanitary deficiencies are then held to furnish an explanation of the source of the infection. In other cases no such common conditions can be discovered, and the origin of the outbreak is less easy to account for. This was the case in an epidemic of diphtheria which occurred at King's Lyun, and was reported on by Dr. Airy. Here personal conveyance of the disease was positively excluded in the majority of cases. The milk was not at fault. The water-supply, the system of drainage, and the method of disposal of the excrement were inaufficient, either singly or together, to explain the distribution of the infection. It was however, noticed that excurations had been in progress in the must of the surient river-led and of a greek which had once been a sewer in connection with the town. Dr. Airy suggests that by this means " longburied germs of some indigenous diplitheria, cousing microsystes," merlass been disengaged; and that these carried amongst the inhabitants, and aided by season and atmosphere, may have given rise to the outbreak.

Diplatheria is no doubt the consequence of a specific poison, however this may originate. The essence of the disease has been attributed to spherical bacteria (micrococci), which have been discoursed sourning in the false membranes and scuclations from the inflamed nancous surfaces; but as similar bacteria have been found in the secretions thrown out by ordinary non-specific stomatitis, too much importance must not be attributed to the presence of these organisms. The real nature of the virus has yet to be discoursed. The discuss with which diplatheria has the closest affinity appears to be scarlatina. Epidemics of the two discoulers are frequently seen to preval in the same neighbourhood at the same time, and it was ence supposed that the scriting causes of the two discusses was the same. It is now, however, acknowledged that they have no mutually protective power; and there is no evidence that the contagion of diplatheria has ever given rise to searlation.

Morbid discours.—When the planyax is examined the changes found on the inflanced muscous membrane are an follows: the surface becomes hypersensio and smollen, and after a few hours is covered with a whitish or yellowish layer which adheres closely to the nuccus membrane beneath it, fitting accurately into every depression of the surface. The layer when first formed cannot be removed; but as it increases in extent and thickness, it gradually becomes tougher, and can then be peoled off the surface to which it adheres. Later, it begins to become and may separate spectamentsly. When uncovered the nursuus membrane may be found to be reddened and thickened, and if the inflammation has been severe, raw-looking or even alcounted.

On examination of the false membrane, it is found to present to the naked eye the appearance of congulated fibrine; but under the microscopia seen to consist of proliferated spitholial cells which are fined together into a network. These cells are cloudy from a peculiar degeneration of their protopham. A vertical section of the layer shows the undermost cells to be much smaller than those at the surface, and in a far less admired stage of degeneration. Minute extravasations of blood are also scattered through the substance of the layer. If the vertical section be made in any and be carried down through the miscous membrane, it will be seen that the exceled layer is scated directly upon the bosenent membrane, taking the place of the ordinary spithelial confing. When the morbid process comes to an end, degeneration censes; a hittle paradent matter, formed by

maltered new cells mixed with serum, appears between the meccus surface and the false membrane covering it, and the latter is detached.

In the largue the mucous membrane is inflamed and swellen, and a fibrinous explation is thrown out between the basement membrane and the epathelial covering. This on examination can be separated into layers consisting, according to Bindfleisch, of alternating strain of corpuscular elements (lencocytes) and of fibrine. The superficial spithelial layer very quickly disappears. The mixrococci, which are found in immense members in the false membrane, have been already referred to. According to Senutor, these organisms are common to all forms of stematitis, and are probably identical with the spores of the leptothrix braccalis.

The consistence of the false membrane varies in different cases. It is often tough and tenacious, especially in the air-passages; but sometimes a very soft and pullaceous. The latter condition is common when the false membrane occupies the pharynx in cases accompanied by severe constitutional symptoms and great bodily prostetion. The more usual seats of the false membrane are the tousils, usula, soft palate and back of the pharynx; the need passages; the hrynx and tractice. Less commonly it is found on the conjunctive; at the borders of the axia, and is girls of the vagina. Sometimes it appears on wounds of the shin. The moreous membrane is resually, as has been said, congested and swellen. It is very irritable and bloods enaily. Sometimes there is superficial allocation, and in rare cases the ulceration extends deeply, and sloughing of the tissues may occur. Small ulcerations about the edges of the glottles are especially common in mass where the inflammation occupies the laryns. The cervical glands are swellen from repid proliferation of small round cells, and the surrounding tissues are infiltrated with serum containing scattered proceedle.

Besides these local pathological changes, other organs of the body are

often affected. Thus :-

The frequency be the sent of lobular pastmenia or collapse; and the air-passages are sometimes lined with labe membrane as for as their smaller

branches.

The Amet, although itself showing to signs of siscose, may have its right centricle filled with a colourless ante-meeter clot which extends into the centricle. It is sometimes stated that the lining membrane may be its sent of endocarditis; but Parrot asserts that he has never met with endocarditis in a case of fatal diphtherm. He believes that the bending elsewhere described, which is almost a natural condition in many young infants, has been mistaken for the result of inflammation. Perfectfits, however, is occasionally present; and in a few instances a granular degreeration of the beart-walls has been observed. This degeneration is considered by Leyden, of Berlin, to be of an inflammatory character. It consists in a multiplication of the intermerchir nuclei which strophy and form spots of degeneration. At the same time the muscular fibres undergo fany degeneration. As a consequence of these changes the heart-walls become softer in consistence; extravosations of blood take place into them; and their cavities are diluted.

The listness may be unlarged and pile, with more or less granular deposit in the renal cells. The cells themselves are often detached so as

to block up the tubes. They are mixed with healing coats.

Besides the above changes, there may be extramation of bleed into the various organs and beneath the nearons and serous surfaces. This occurs in the malignant form of other varieties of acute specific disease.

On account of the frequent occurrence of parabolic during engalescence

from diplatheria, the nervous system has been carefully examined for signs of degeneration. Charcot and Vulpian were the first to discover indications of pathological change. In the year 1862 these observers detected granular degeneration of nerves and muscles of the soft pulits. In the motor nerves of this part the tubules were emptiod of their medialogy substance, and their neurlienous contained many granular cells. Outel, in 1871, found namy extransations in the substance of the brain, spiral cord, and spiral nerves in a case where death had occurred from diplatheritic paralysis with general strophy of muscle. Similar extravasations have been found by Bald. In addition, this observer indiced the perves to be thickened at their roots, and their shouths to be filled with hypertrophical lymphoid cells and muchi. Descript, in five cases of death in children from diphtheritic pundrsis, found in each instance changes strictly limited to the nerves supplying the paralyzed parts. These changes consisted in a degeneration of the unterior roots similar to that which takes place in the distal end of a nerve after section. He attributes the degeneration to clasures in the gray matter of the auterior cornus.

There is no doubt that diphtherm is a specific contagious discuss, and that it is, at least finally, a constitutional one; but opinions differ as to whether the mulair is constitutional from the first. The more consuculy received opinion is, parhaps, that the affection is always a constitutional one, and that the throat bosion is its chief local expression, analogous to the rath of specific fevers. Some published are, however, inclined to believe that the lesson of the mucous membrane is at first a purely local allocant resulting directly from contact with the poison, just as the pustule adment resulting directly from contact with the poison, just as the pustule of small-pox may be contest locally by the process of inoculation. According to the view the constitutional suffering would be of the nature of septembia, the blood being directly contaminated by absorption of a specific view from the discount apot. The well-known influence of a external state of the fances in increasing the encognibility of the individual to the

diptheritie contagion stems to lead support to this theory.

Sympless —As in all forms of symplectic disease, the anset of the illness is preceded by a period of insulation. This period may eccupy only a few hours or may last for a week or eight days before the symptoms of invasion are noticed.

Cases of diphtheria may be divided, according to the gravity of the

symptoms, into the mild, the servers, and the muligness forms.

In the sold form of the disease the child is a little feverish, often complains of beschales, and is unwilling to swallow sold food. The fever is slight, the temperature often rising to between 101° and 102°, solden ligher. (Thus, in the case of a little girl aged two yours and ten months, temperature; second day, morning, 99.4°; evening, 101.6°. Third day, morning, 99.4°; evening, 101°. After the date the temperature was normal both morning and evening.) In all cases there is some languar and loss of sprits with a certain expression of distress in the face. Even in slight cases a little change is noticed in the quality of the voice, which becomes mail or threaty. Vomiting is not conseen in the sold form, although in the awerer cases it may be a frequent and distressing symptom. Sometimes the symptoms are seen less marked. The child may take his food as usual without any complaint, and only show his indisposition by a certain policy of face and want of sprightliness in his look.

When the threat is examined, the fances are found to be red and smallen but more on one side than on the other; the neals is distinctly increased in size; and on one or both torsells a gray or farm-colored,

tongle-looking opaque patch will be seen, usually occupying the anterior face. The patch may be a continuous layer of some consistence, or may be composed of spots of labs numbrane scattered over the surface. These, however, soon units so as to form a more coherent costing. In all cases the glands at the angles of the jaw are tender and onlarged; but this symptom is often not marked until the end of the second or the beginning

In the mild form the temperature often falls after three or four days.

In the mild form the temperature often falls after three or four days. The peaceral symptoms continue triffing; the shall takes food with appetite; and unless he nitempt to swellow solid food, deplatition is accompanied by little distress. The false membrane may apread a little along the soft palate, but usually remains limited in catent. Vary quickly it begins to separate at the edges and then becomes detached. In sure cases, after specimeous separation of the first patch of membrane a second appears upon the morous surfaces. I have known this to happen in one instance. The sore throat may be accompanied by some discharge from the nose. Usually, at the end of a week or ten slays the child is controlescent from the throat affection; but it still remains to be seen whether he will escape after ill-consequences.

In the severe form the disease may be source from its intensity or dangerous from its seat. Thus, it may spread widely over the plurynx and be accompanied by signs of serious constitutional suffering; or may attack the largus and, although limited in extent, produce the gravest consequences from interference with the respiratory process (membraness

croup).

Score plaryages diphtherm may begin with the mild general symptoms which are common in the slighter form which has been described; or may be accompanied by much more serious phenomens. Thus, the child complains of difficulty of availowing and of vacking headache; his face is pale and distressed; fever is high; vomifing may occur on any attempt to take food; and the patient may even be convulsed. The false membrate in the threat is thick and generally coherent. It spreads rapidly over the torsels, the soft palate, and the back of the pharvan; often penetrates into the need force, or focus patches on the checks, the game, and the tips. The odor of the breath is soon noticed to be fetal or oven gargemons; and a thin offensive discharge escapes from the nestrils and forms creats at the openings of the nares.

The submaxillary glands are enlarged and tender; and there is much swelling of the neck. Sometimes becomings occur from the posthroat, and gone. The face is pale with a tendency to lividity; the pulse is rapid and feeble; appetite is completely lest; the bowels are generally relaxed with thin offensive stools; and there is great prostration; Sometimes in these cases the false membrane is loose in consistence and may even be pultaceous. It may assume a dirty gray or brownish line, and in

sometimes almost black from admixture with blood.

When the end is favourable this form lasts for ten days or a fortnight.

After a time, if no serious complication occurs, the false membrans expanses and is not renewed; the swelling subsides; the pulse becomes stronger; the appetite begins to return; and the child enters into convolescence, although for some time be remains anomic and fields. Often, however, the putient dies at the end of the week either from exhaustion, from extension of the inflammation to the largest, or from one of the complications to be afterwards described. The mind is usually clear throughout, although in the worst cases—those in which the disease approaches

most nearly to the malignant type-death may be preceded by deligious wanderings or stuper. In such cases a real septiments may occur, the Mood Issing personed by the absorption of foul putrescent matters in contact with the tissues of the pharynx. The child often shivers, and line temperature rises to 103 or 104", often sinking again in rapid daily variations. The pulse is small and feeble; the eyes sunken and dull-looking; the completion of a dirty yellow tint. There is often epistaxis; the cerviral glands swell to a large size; and the loose arcolar tasses of the neck is infiltrated with serum. The prostration is extreme; apathy is complete; delirium comes on; and the child quickly dies.

In severe diphtheria the amount of fever varies. Even in very bad cases it need not be high. Sometimes the temperature is 103° or 104° at the beginning of the illness, and sinks to the normal level or even below it when the more serious symptoms declare themselves. Sometimes after falling it may again become elevated and reach 106° or higher before death. Some inflammatory complication is then probably present.

Albertingria is a frequent symptom. It occurs in about two-thirds of the cases, but does not necessarily imply gravity in the prognosis. Its amount is usually in proportion to the extent of surface accolved. The altuminum appears to be the consequence of a rapid elimination through the kidneys of poison absorbed from the affected mincous membrane. In sesere cases it may be found as early as twenty-hours from the beginning of the illness. This is, however, exceptionals: Usually it appears on the third or fourth day, but it may be sometimes delayed as late as the minth or tentle. Sometimes the urine is smoky. It contains an excess of urea, and byaline and granular easts may be detected in the deposit. The kidners are in a state of mild parensbranatous perbritis, but this passes off as convilence or becomes established, and rarely leaves ill consequences be-

hind. It is very rare for ununic symptoms or dropes to occur,

When the disease attacks the largus (largueal diphtheria; membranens eroup) the rhild is at once in serious danger. In the majority of cases the largugeal discuse is due to extension of inflammation from the forces. Less commonly the inflammation begins in the tracker and spreads thence appeards and downwards. Case where the disease develops originally in the glottis (the so-called true mumbranous croup) are very rary. Still rarer are the cases where the false membrane rearries limited to the glot-Es. In my own experience I cuntot call to mind a single case of memlimnous laryngitis in which some evidence of false membrane in other parts was not to be obtained. In most cases there was also emulation in the fances. In a few the membrane had spread down the trackes and the faures were from; but even in these eases patches of exudation were mually found on examination after death at the back of the nurse.

The extension to the air-passages often takes place quite suidonly and merpertodly. The preceding symptoms had been slight, attracting little attention, when suddenly the breathing is noticed to be stridillous. The symptoms of membranous croup then develops themselves with starting repidity. Usually the sore throat and signs of entarth contions for several days before any more alarming symptoms are observed. The elibl is not thought to be ill. He seldem refuses his food; and although a little languid and unusually accions for drink, does not appear to be dis-

tressed.

When the larrageal disease begins the breath-sounds lose their ordinary character and become harsh and strictulous. At the same time the cough is hard and harsh and the voice and cry are hourse. The change in the character of the breathing may be the carliest of the new symptoms, or may

be preceded by the change in the voice and cough,

This stage of the disease may continue for several days; but often after a few hours the breathing becomes greatly oppressed, and attacks of violent dyspaces throw the patient into the greatest distress. In these attacks however violent they may be, there is no orthopnora, for the breathing is not more oppressed when the head is low. As a rule, the child his back in his cot or in his mother's arms. His face is haid; his mouth is open; his eyes stare wildly, and he looks dresifully maxons and frightened. The dyspices affects both respiratory movements. Each inspiration is prelouged, high-pinched, and metallic; the expirations shorter and hand; the cough hourse and whispering. If the chest is uncovered at this time it will be noticed that at each inspiration the lower half of the breast-loan bends inwards so as to learn a deep pit in the epigustriam. At the same time the intercostal spaces sleepen and the supra-sternal netch is depressed, The attack of dyspaces lasts from a few minutes to a quarter of an hour or loager. When it subsides the child's terror disappears; his breathing becomes loss noisy and stridulous; his respiratory movements less laborous, and he passes into a state of comparative case. Still, the breathing is rapid and suddle; the sares work violently; some lividity remains in the face, and there is considerable recession of the soft parts of the chest in inspiration. On examination of the chest, the breath-sounds are accompanied by a strider conducted from the larger, and this may completely conceal all natural weignlar nauman.

The attacks of dyspassa return at short intervals, and are easily earited by movement or by anything which invitates or agitates the petient. The cough occurs frequently and is lessue and whispering. Sometimes the putient expectorates patches or shreds of falso membrane; but unless the tracken be opened the child rarely expels enough of the obstructing substance to produce approciable relief to his symptoms. At each recurrence of the dysprace the attack is more severe than before, so that gradually the shild passes into a semi-approxiated state. He lies buck with purple lips and livid face; his pulse is fooble, frequent, and very irregular; his breathing rapid and shallow, although his narea still work; his freehead classing, and his extremities cold. He often moves his arms redlessly, and his beart's action may become very intermittent, a curious pause taking place between every two or three pulsations. On economication of the class there is usually good resonance, except perhaps at the extreme hase. The breatlesounds are obscured by conducted strider and may be accompanied by day thoughts. If no operative procedure be attempted the drownings deepen into stupor, and the child scale quietly or dies in a last struggle for

breath.

If at this stage the trackes be opened, the immediate effect of the operation is most striking. In a forourable case, where the trackes below the opening is not obstructed, the child is at once relieved from almost all his distress. Air again penetrates deeply into the lange; the lividity disappears; the restlessness subsides; the breathing becomes natural; the name cause to act, and the look of terror and suffering passes off and may even be specialled by a smale.

When the disease thus attacks the largux the duration is usually very short. From the time when the first signs of straintings breathing are noticed to the end only a few hours may slapes. In other case, the child may live two or three days; but this longer duration is due to slower progress in the earlier part of the illness. When senous dyspress superwenes the child, if not relieved by operation, seldom survives the next twenty-four hours. Sometimes, however, if the folse membrane is very limited in extent, recovery may take place. In these cases the symptoms are seldom very severe, and in particular the attacks of dyspaon, if prescut at all, are mild and infrequent. The favourable change is marked by a less laboured character of breathing, a brighter look in the face, increased lorseness and more natural quality of the cough, and a return of tranquillity to the manner. Still, there is little doubt that many cases of supposed recovery from membranous croup are really cases of stridelous laryagitis, which is a much milder complaint and enroly ends fatally.

In the walquart form of the disease the constitutional symptoms are very severe, and may be quite out of proportion to the amount of local lesion. Vomiting is usually frequent. There is often diarrhees. The child is pule and haggard-looking, and seems stopid and drozer. His skin is spotted with petechine. His pulse is rapid, small, and feeble. His feet. and lands are cool and clarany, and even the internal temperature of the body selfors reaches a high elevation. Sometimes, indeed, it is normal or even subnormal. Thus a little boy, aged two years and a half, was admitted into the East London Children's Hospital with word-leather-like exulation on the fances, great swelling of the cervical glands, and marked production. In this boy the temperature never rose above 18.2", and a few isours before death was only 97 in the rectum. The child died two days after ninuedon in a convulere fit.

The false numbrane is generally of a dirty-brown colour. Extension of the inflammation takes place rapidly into the nose; spistexis often occurs, or there is a flow of thin blood-stained fluid from the matrils. Sometimes the lathrymal due to become obstructed; the eyes then look watery, and false membrane may even appear on the conjunction. The mucous membrane of the fances may become alcorated or gaugemous, and the small from the mouth is very offensive. Harmorrhages may occur from the gums The urine is often smoky and almost always albuminous. and threat. Delirium comes on followed by stapor, and the child dies exhausted.

Secusiary Diphtheria. - Somethous diphtheria occurs secondarily to some acute discuss. Thus it may arise as a complication of typhoid fever, pyzemia, crysspelia, messlea, searlatina, whooping-cough, or other form of scarte illuses. In these cases the amount of false municipane is usually limited in extent, but the inflammatory process is spt to run on into alcomfion or even gangrone. The ulears are rounded or sinners, and may penetrate deeply into the tissues. Gangrene is not common. It usually organs in the torsels and pillars of the fauces. These parts become gray and exhale a most offeneive odour. The sloughs separate after a time and leave grayrds, unhealthy-looking puts which in favourable cases may best, with considerable contraction of tissue in the affected parts.

Complication: - The ordinary course of diphthrain may be interfered with by various complications which delay recovery or unfavourably infigure the issue of the illness. The occurrence of alluminums cannot be looked upon as a complication. This symptom is found in mild as well as in severe cases, and is far more often present than absent. It appears to be the consequence of elisomation of the poison by the kidneys, and has probably little influence on the prognosis. The complications which will be considered consist of the formation of falso membrane in unusual situations; the securrence of inflammation of special organs, such as the lungs, the heart, and the pericurdirm ; the formation of a thrombus in the heart or hirge vessels; and the appearance of purelysis.

Nasal diplotheria has been already referred to as constituting a symptom of the malignost type of the disease. A diplotheritic coryga is, however, sometimes seen as a complication of milder attacks. In these cases a thin discharge flows from the nostral, neually at first on one side only. It produces some exconstion of the margin of the masal opening as well as of the upper lip, for those parts are often red and raw-looking. No doubt the presence of false membrane in the assal passages as a sign of the atmost gravity; but I have known coryga with exconstion of the mostil to occur in cases of a comparatively mild nature without producing an unb-

vourable influence upon the course of the illness. Scoretimes in epidemies of diphtheria more unusual munifestations of the discose are met with. The false membrane may form upon the conjunction, the external auditory meatus, the outlets of the vagina and restem, upon the glass penis, and upon any wounds or abunded surfaces present on the skin. Often after trachectomy the edges of the wound quickly become covered by the dightheritic extilation. These exceptional sents of the false memberse may be the only local signs of the disease to be discovered, or may be accompanied by the usual affection of the throat. When a wound or abraided surface becomes attroded by the diphtheritic process, its borders become purple red and swolks, and the surface yours out a produce, watery, fetal discharge. Soon a politic forms on the sere, and from this point the disease may spread over the thin. Thus the discharge irritates the neighbouring cutaucous surface; little resides form, break, and become themselves converted into diphtheritic series covered by the characteristic false membrane. In this way, aceccoing to Tromsessa, the diphtheritic process may aprend over a large extent of surface; and the layers of membrane, constantly most ened by the discharge, undergo rapid decomposition, and give out a most offensive gaugemons stench. The general symptoms in such cases are very severe, and the patient namely sinks regidly from exhaustion.

Inflammatory complications sometimes arise in the course of diphtheria. After the operation of trackestomy for membraness croup, it is unfertunately for from uncommon to find the temperature rise to 102° or 103°, and to discover, on examination of the chest, all the eight of nexts consolidation of the burg. Sometimes, however, the palmonary lesion is an early complication. In any case it greatly lessons the class's chances

of treovers.

Inflammation of the pericardium and endocardium are occasional complications of the illness. Pericardius occurring alone wall probably be overlooked without a careful examination of the precondial region. Endocarditis also may give rise to but few symptoms, and is often only discovered on examination of the body after death. We must, however, be on our guard, and avoid attributing to endocarditis the formationatom bending of the mitral value described by Parrot. (See page 646.)

When a thrombus forms in the heart, death may occur either suidenly at the moment of formation of the couprime, or gradually after an interval of much arrively and suffering. Usually the symptons appear quite sufdenly, and at a time when the child seems to be going on investigly to convolve success, or even after recovery is far advanced. If the formation of the clot does not being the case to a sudden termination, marked dysphonis one of the cartiest signs of the accelent.

Dyspasses arising from want of blood in the pulmonary circulation is shown, as Dr. Richardson has pointed out, by symptoms very different in character from those due to an obstructed largue. In the dest case, although the breathing is laboured, the language full of air and may even be distended with it sufficiently to produce in the younger subjects a peculiar prominence in the anterior part of the chest. There are no signs of imperfect sention of blood, but all the symptoms indicate obstruction to the circulatory current. Thus the lips and checks are blue; the jugular veins distended; the heart-impulse quick, feeble, and irregular. The body is cold and pale; it may be murbled, especially at the entremities; and there is intense anxiety and constant movement. When death occurs, the heart concerts act before the respiratory movements have come to an end.

On the other hand, when apassa occurs from laryngeal obstruction the symptoms all point to imperfect a ration of blood. The surface of the body is dusty instead of pule; the heart-sounds are clear; the cardine impulse is feeble but carely inmultarens; the hungs are congested but not couply stations; there is great recession of the spigastriam and soft parts of the chest at each impuration; the nurseles are convulsed; and the breathing

stops before the movements of the heart cease.

Sudden doubt is due in most cases, probably, to the mpid formation of a clot in the right side of the heart. It may be also the consequence of paralysis of the cardiac branches of the par vagum; but in cases where the sudden end has been attributed to this cause, a granular degeneration of the cardiac muscular fibres with softening of the walls and dilutation of the ravities has been discovered on careful commission. Layden suggests that the cardiac failure is the result of these changes. According to this observer, dangerous weakness of the heart from this cause is indicated by gallop-rhythm of the heart-sounds with weakness of the impulse and irregular transforms contractions. Venitring, due to a reflection of the disturbance to other parts of the pneumogastric nerve, indicates that the danger is pressing. Other observers have noted precordial distress, extreme dyspances, an otherway and irregularity of the pulse, and atmets of pulpration abstructing with slowness of the pulsations. H. Weber has found the pulse fall to twenty-right or even sixteen beats in the minute.

In a seriain proportion of cases of diphthesis convalescence is interrupted by the appearance of paralytic besions. The frequency with which this complication is found to occur has been variously estimated. Probably it depends in some measure upon the character of the epidenic. The degree, too, to which the aerrous system is affected is subject to great variety. In some cases the boson is so trifling as scarcely to attract attention. In others it amounts to well-defined and general loss of power. Taking mild and severe forms together, the proportion of patients who suffer from the complication is probably one in every ten or twelve cases.

Diplitheritie puralysis is not limited to cases in which the throat affection has been severe. The slighter forms of the distemper are as liable as the more serious forms to be followed by the nervelesion. Nor is its occurrence determined by the seat of the diplitheratic manifestation or the presence or absence of alluminuria. It may follow in cases where the false membrane has been limited to the skin, and in cases where albendously has not been observed. The period at which the puralysis appear is also subject to variety. From an analysis of exteen cases Dr. Absencemble found that the paralytic complication might appear from two to fee seeds from the beginning of the almost Sassie has noticed it as easily as the second or third day of the discuss, but states that it generally comes on from one to two weeks after the disappearance of the false membrane. According to this observer, when the paralytic symptoms appear only they usually develop gradually and spread slowly from one part to another.

When the enset is retarded, the development of the paralytic phenomena

is much more rapid and regular.

The motor lesson may be preceded by increase of langues and irritability of temper. Dr. Hermann Weber has noticed in neary cases a marked diminution in the rapidity of the pulse. The puralpoists is symmetrical as a rule. Usually it begins either by less of power in the soft pulse and pinnerin or, by what is equally common, parsiyes of accommodation of the eye. It is noticed that when the child attempts to enablow he coughs violently and finishs return through the nose. His voice has a most quality and he energy in his sleep. If the patient is old enough we can accretion by impection that he has no power of elevating the usula, and perlaps, also, that there is more or less amosthesia of the funces. If the ocular numerics are affected the child complains that he sees double. Beating is difficult or improvable, and sometimes there is an evident equint. In ray

cases there is temporary blindness.

When the pharynx is first affected the paralysis may remain limited to this part. If it be complete, the power of smallowing is lost and food can no longer be propelled down the guilet. The food taken is found to colloct in a pouch formed by yielding of the units of the resophages. In such cases nominkness thus to be conseved to the stomach by mechanical meson. The tree of the storageh-tube is of the greatest service in those cases, both as a method of maintaining patrition and also as a means of preventing the autrance of food into the glottis. From the pharyax the paralysis and screen to other parts. The tongue and lips may become affected so that the child dribbles and speech is greatly interfered with. Less of power may also be noticed in the limbs, the neck, and the back. Of the limbs, the legy are affected more commonly than the arms. The punitysis almost mornishly takes the form of pumplogia, for even if the weakness is more nurked on one side, it will be usually found on examination that the side which appears to be sound has not entirely excaped. The motor paralysis may be accompanied by some disturbance of sensation. In rare cases control over the sphinoters is lost. Parallells of the respiratory muscles stene times occurs. There is then dyspacea: nations collects in the longs, for there is no power to cough it up; and the child usually dies sufficiented. If the displaragm is paralysed the child has attacks of dyspaces, coming on at the slightest excitement or when an attempt is made to cough. Death may ensure in such an attack. The most moderate entarth in such a condition adds an additional element of danger to the case.

Besides these forms of motor lesion, sudden death attributed to paraly-

sis of the heart, has been already referred to (see page 93).

Dipletheritis paralysis is fatal only in exceptional cases. When feath occurs, it is usually the consequence of cardian thrombons or syncope; less connectly it is due to impaired natrition through difficulty of scallowing, or to nervous exhaustion. Becovery is the rule, and the implifity with which this takes place is very variable. The course is much shorter in cases where the paralesis is limited to the palde. This usually passes off in a feetinight or three weeks. When the loss of power becomes general, a cure is effected with much greater difficulty; but even in those cases it schlour lasts longer than three, or at the most four months. Sometimes the limbs recover their power very impidly while the plangua remains obstinately paralyzed for a considerable longer period.

Proposes.—When dightherin gives size to well-numbed symptoms, its detection is easy. The tough-looking gray or favo-coloured members in the threat, the reduces and swelling of the famous, and the enlarged persical glands are sufficiently characteristic. In topsillitis the usula is not swoller, and the whitish exulation occupying the mouths of the crypts. and sometimes spotting the surface of the tonsils, is very different in oppearance from the consistent false membrane of diphtheria. It never forms a coherent layer, and never invades the nares or the larger. Moreover, in quinsy, although the avoilen tonsils can be felt externally, the cervical glands are seldom appreciably enlarged. If, in diphtheria, the exudation is self and pultaceous, instead of being solerent and tough, there is still enlargement of the superficial cervical glands, and the general symptoms indicate profound depression. Any huskiness or weakness of the roice implies extension of the inflammation to the laryux, and points unuistaleaboy to dightheria. The difficult cases to detect are those in which the throat affection is imperfectly developed, or is slow to appear. At first, nothing may be noticed but redness and swelling of the fonces, with some disconfect in swallowing. In such cases until the false membrane sppears, we cannot say that we have not to deal with an prdinary inflammatory sore throat; for although the senkness and paller of the patient are usually out of proportion to the apparent mildness of the local affection, no positive inference can be drawn from this discrepance, as some children are more depressed than others by a triffing miment. If such a condition be not with at a time when dipatheris is known to be prevalent, we should regard the symptoms with much apprehension. Indeed, in any ease of sore throat, if enlargement of the giands of the neck can be discovered, we should withhold a positive assumace that the complaint is one of little consequence. Sometimes the appearance of albumon in the urine comes opportunely to clear up a doubtful case. Sometimes after the terminution of an ill-defined sugars, the occurrence of paralesis throws a new light upon the past indisposition.

Laryngeal diphtheria, or membranous croup, may be confounded with stricted and laryngitia, with abscess of or about the laryna, or with retropharyngeal supportation. The distinctive points between these discuss will be referred to in the chapters treating of these affections. It is peasible that a foreign body in the nir-passages may be mistaken for croup; but the attack of dyspacea produced by this means comes on quite anddenly and follows at once upon in uttempt to smaller. There is specmodic cough but no hourseness; and the first purcayon of sufficiation and cough is usually succeeded by a period of quiet in which, for the time, the

breathing is fairly easy and the shild seems to be well.

It is very important to be able to discriminate between cases in which tracked tony may be expected to succeed and those in which no permanent good can be anticipated from the operation. Do George Bachanas, of Glasgow, has pointed out that in cases where the air-passages below the point of obstruction are free, and the lungs are in a normal condition, there is great recession of all the soft parts of the class. At each inspiration the intercestal spaces fall deeply in, and the epigastrium forms a deep bollow. If, on the contrary, the smaller benefinal tubes are full of means or dightheritic explation, the movements of the class-wall are impeded, and the class is paffed out so as to rescable the distended thous of chronic emphyseus.

If the patient he seen for the first time when the paralytic symptoms have declared themselves, the history of the attack will declare the nature of the disease. Even if, as nonetines happens, the throat affection has been too slight to constitute a regular illness, we shall find, probably, that other members of the household have suffered from diphtheria, and that, in the child himself, any signs of general nerre-lesion have been preceded by a mand tone of voice, some trouble in availouing, and the occasional

return of fluids through the rose.

According to M. Landrousy, if a child who is convalracent from dipletherin begins to suffer from attacks of dyopnom excited by an attempt to cough, or by any small recation, we should suspect paralysis of the displanges in the absence of any more existent explanation of the distressing phanomenous.

Proposits.—Even in the mildest attack of diphtheria we must be granted in the expression of our opinion as to the probable issue of the illness. Indeed, it is waser to express no opinion upon the matter, but to confine ourselves to reporting the daily progress of the case, and spalling cheerfully so long as no symptoms arise indicative of danger. We can never feel carriain that the inflammation may not spread to the buyou, or that other ill consequences may not sueus, however favourably the disease may appear to be going on. Caution in prognosis is especially necessary if the epidemic is a severe one, for outbreaks of the distances way greatly in the severals of type of the illness, and in some the mortality is much greater than it is in others. The age of the patient is also an importunt item to take into consideration, for a young child has fewer chances

of recovery than an older one.

Deferent dangers are to be apprehended at different periods of the discase. During the first week we dread lest the inflammation should aprend to the largus, or lest the child should die from septicivinia. We therefore notice carefully the character of the breathing and the quality of the voice. If the breathing become shall and the movements laboured or the voice get weak or basky, we can have no doubt that the largus is becoming involved. So, also, in cases where the false membrane is thick, pulpy, and putrescent the occurrence of shivering or a sudden rise in the temperature, with a doll yellow text of the face and a rapid feelile pulse, makes us fear that the blood is becoming postened by absorption from the affected macous membrane. Dr. Jacoby has pointed out that in misal diphtheria septicamia is especially liable to occur. In this form of the discove, therefore, the regular use of disinfecting injections is unpecultarly called for.

After the first six or seven days the child is an danger of dusth from syncope, from dotting of blood in the heart, and from inflammatory complications. At this time we carefully watch the pulse. If this full retaily in frequency and strength, especially if at the same time stending occur and be often repeated, the danger is immirent. At this period of the discuss homogeneous sometimes come on as a result of profound blood contamination and are very exhausting. Other signs of bad angury are: a very feeble frequent pulse, condist dyspaces (see page 28), general swelling of the neck, great prostration, and delirates warsherings. Allows:

nuria, unless excessive, is not necessarily a grave symptom.

When the diplitheritie explation involes the tracken the danger is very serious; but if the operation of trackentomy be performed in time, and a marked retraction of the chest-wall indicates that the smaller tubes are free below the point of obstruction, and that air, if admitted, will be able to penetrate to the alveoli, recovery is far from impossible. After the operation, uncodes depends rhedly upon the child's equilality of taking and directing his food, and upon the large remaining free from paramogra. If there is difficulty in administering nourishment, the child can be still fed through the stomach tube; but loss of appetite usually implies facility dis-

gestive power, and the prospect is not favourable. If presumon a occur, the

prognosis is gloomy.

After the end of the second or third week nervous symptoms may be expected. In these the progness is favourable. It only becomes serious when the lesion is widely diffused, when all the muscles of deglatition are affected so that scallowing becomes impossible, or when the displangm and respiratory numbers are attacked. No child, however, should be allowed to the of starvation, for nourishment can always be administered at regular intervals through the stornach-take possed through the non-

Trackwat.—Dightheris is an infectious disease, and the ordinary precustions must therefore be taken against its spread. The sirk room should be divested of carpets, rugs, curtains, and superfluous furniture; and proper measures should be taken to disinfect all discharges from the patient

before removal.

The child must be kept quiet in bad. It is well to place him in a tent bedstead and so envelop him in an atmosphere of steam impregnated with tayand, creasote, or other disinfectant. This may be most conveniently dene by the use of the "cross kettle" designed by Mr. R. W. Parker, on the principle of Dr. Loois "steam draught inhaler." Crossote or carbolic acid may be added to the water in the kettle in the proportion of twenty drops to the pint, or a saturated solution of thymol can be made use of. So many technical matters have to be attended to in the treatment of these cases that whatever be the age of the child the assistance of a skilled norse is independable. Another nursing, selfons if ever satisfactory, is here a serious discalinatage to the patient, and introduces into the case an additional element of danger.

The treatment of the disease comprises general and local measures, and

three are of about equal importance.

The general treatment consists in employing every means to support the strength of the child, so us to enable him to struggle successfully against the exhausting influence of the disorder. The patient abould be emplied with food of a nourishing and digratible kind. Strong beef sasence, yolk of egg, milk thickened with Chapenna's cutire wheat flour haked in an oven, pounded underdone ment made fluid with atrong ment juice or ment essence, all these are very useful. Alcohol must not be forgotten, and will often have to be given in full doses. Old brandy or whiskey, with or without yolk of egg, should be given at the first sign of feeblesses of the pulse. A shild five years of age will take with benefit thirty drops of good brandy every two hours. In infants white wine whey given fresly is very medial. In giving stimulants we must be guided by the sinte of the pulse, or in infants by the condition of the fortunelle. long as the pulse is firm or the fontanelle little depressed, alcohol is not required, when the pulse gets soft and compressible, or the fortunelle sinks, stimulants must be given without delay. It some cases they will be toquired from the first.

In the selection of medicines preference should be given to such as do not cause depression. In diphtheria there is a tendency to failure of the heart's action; and this tendency is likely to be favoured by the use of depressing remodics, such as the selicylate of soda, which has been sensitives reconstruenced. A simple febridage may be given while the temperature is high and the skin dry; but directly the strength shows signs of failing, from and quirine should be resorted to. The perchloride is perhaps as good a preparation as any other. Ten or fifteen drops of the facture may be given with one groun of quinine every three hours to a child fire years of

age. Much larger dose of the drug are often recommended; but young children vary greatly in their capacity for benefiting by chalybente remedies, and in weakly subjects the stomach may be readily deranged by an execuof the medicine. Now it is of the first importance to maintain the digrative power, as incomparably the best tonic for a child is neurishing food.

Instead of quinities, chlorate of potnsh is often conjoined with the iron; but this remody should be given with contion as it has a depressing effect on some children. It is well to begin the treatment with a necessial purge, such as gray parader with julipine, but the operiors need not be

afterwards repeated.

In the use of heal remedies we have to fulfil three indications; to arrest the spread of the false membrane; to promote its removal, and to present septiments from absorption of purroscent matters in contact with the tissue.

Many measures have been employed to prevent the extension of the local lesion in the threat. At one time strong contensing agents were resorted to to effect this purpose, such as the solid nitrate of silver, equal parts of strong hydrochloric acid and honey, and the strong solution of perchloride of iron. The repeated use of these agents is now almost universally condensed, but one thorough sembling of the threat is still advocated by some writers. I have occasionally analoged equal parts of strong perchloride of iron solution and glycerine, and have thought that used efficiently, once for all, the application has been followed by benefit. Many writers, however, deprecate the use of these powerful agents; unit certainly, since I have abandoned their employment. I have not found the

discuso less tractable or more dangerous to life.

To premote the Equefaction or removal of the false membrane many agents are employed. Rough tearing away of the diphtheritic exulation is injurious as well as useless; but gardle assumes to further its destruc-tion are decidedly beneficial. To be of service, however, the application must be used repeatedly, and can be applied with perfect efficiency in the form of a speny from one of Siegel's spray producers. Lame-under, alms or with carbolic acid (twenty drops to the nance of lime-water). In potasse (twenty drops to the sunce of water), borneic seid (a scrupe to the ounce), factic acid (twenty-six grains to the ounce), benzonte of soda (one accupito one drachm to the ounce), all these are of service, and the addition of glycarine (half a descion to the ounce) increases the efficacy of the salations. Letious of chlorate of potach (ten grains to the osuce) and of salicylic acid (three or four grains to the ounce) are praised by some, as well as dry insuffations of flour of sulplant, of alum, and of tannin. These latter have, however, the disadvantage that they cannot be employed with out distressing the patient. If thought more desirable, any of the above figured preparations may be used with a break, but this method of enployment is distressing, and except perhaps in the case of infants, presents no special adminispe.

The third indication, viz., to destroy the poisonous products of pulvefaction so as to prevent absorption and blood contamination, is partly affected by the use of many of the proceding agents. But besides there special disinformats may be speared into the throat, such as the solution of chlorimated sods or lime diluted with mater (built a druchm to the ounce) permangunate of points (five grains to the sames), sulphurous acid, pure or diluted with an equal quantity of unter, etc. The comfort of the patient is also promoted by the use of the steam kettle, as already recommended, and by warm applications externally to the throat. If the claid be obt-

strough, he may be allowed to suck hungs of ice.

In exel diphtheria, where septimenia is especially to be dreaded the thorough cleaning of the most passages with a mild disinfecting solution should never be emitted. The importance of this measure is insisted upon by Dr. Jacoba, who recommends that the process should be mirred out by the fountain syrings wherever practicable. Failing that, an ordinary our syrings can be made use of. He directs that the injection should be repeated as often as every hour, and that if the obstructed nostrils resist the passage of fluid, the courser matters must be removed by a probe or forceps. Dr. Jacobi states that these injections, efficiently ampleyed, give great relief to the patient and rapidly reduce the size of the swellen glands. He advises a warm solution of earlieble acid (two to four grains to the

ounce), or, if there is no factor, of lime-water.

When the discuss invades the largus the danger is at once imminent, and the question of operative interference has to be considered. In cases of intyaged diphthem (true membraness croup), trackectomy is the only hope left to us the child's last chance for his life. Directly, therefore, we feel sears that the largers is involved, the operation abould be undertaken without unnecessary delay. It must be remembered, however, that dyspures alone is not always a sufficient indication for this step. As has been before explained (see p. 50), livelity and laboured breathing are sometimes due to an impediment to the circulation of blood through the lungs. In such a case there is no want of air, and opening the larger will being no relief to the child's distress. The signs by which these two very different conditions are indicated here been already enumerated. When, therefore, we notice that the respiratory movements have become laboured, with great recession of the opigustrium and the soft parts of the closel in inspiration; that the breathing is hissing and striduleus, the wice whispering, and the cough basky and stiffed, the operation should be no longer postponed. We have nothing to hope for in delay; on the contrary, the earlier the tube is introduced into the truches, the money will the child's suffering be relieved and the better be his prospect of a curs. The success which often attends the operation of Inchestons in membraness cromp is very encouraging, and even in the case of an infant we should not hesitate to have recourse to if. Even at a later stage, when the child seems to be at the last grop, the operation should still be undertaken, for nothing short of notmal death can remite it hopsless.

In performing the operation, if the asphysis is for advanced ancesthetics will be unmore every. If the lividity is not marked, chloroform should be administered, and if the child be made to inhale it gradually so that he does not breathe in too large a volume at first, the anesthetic may be given without fear. The details of the operation, as they come under the department of the surgeon, used not be here referred to; more especially as they will be found recorded at length in all works on practical surgery. It may be only remarked that the size of the tube to be employed should be the largest which can be introduced without violence; that it should be as short as is consistent with safety; and that before its introduction the traction and largest must be thoroughly element by introducing a feather scaked in a worm solution of carbonate of solutherough the opening. The importance of this precaution has been strongly insisted upon by my col-

longue Mr. Parlor in his well-known treatise.

The relief afferded by the operation is usually complete. If the difficulty of breating still continues, it is a sign that the tracken is obstructed below the opening, and that there is probably extension of the false memterns for down the ramifications of the broach. The after-conduct of these cases is of the utmost importance, as success depends upon judicous norsing and scrupulous attention to small points of treatment. Our object is to furnish a constant supply of properly prepared air to the large. The utmost care has therefore to be taken to maintain the inspired air at a suitable temperature and degree of noise ture, and to see that the tube is kept in place. Moreover, the strength of the child has to be supported, and the treatment of the constitutional disease to be continued.

The child should remain in his tent bedstead, in a room of the temperature of 70°; and the complettle must be kept in action on a side table so as to moisten the air be breather. A disinfectant should be always added to the water in the boiler, as already directed. The kettle must not be placed too near the bed. If the air is kept constantly antimated with expect, the excess of moisture tends to degrees the child. Mr. Parker's rule is a good one, viz., that we should be guided by the amount of tracked secretion. If this is small, the amount of steam can be increased.

The wind-sipe and trackerstony take must be kept patent. Free secretion is to be desired, test this must not be allowed to accumulate so as to interfere with the passage of sin. It is important to apply weak alkaline solutions, such as the bicarbonate of soin (ten to twenty grains to the ounce) with a hand spray-producer at short intervals, so that the inheled air may be asturated with the solvent. The speny at once produces free some tion into the windpipe; and the repeated use of this agent prevents the moras from accumulating and becoming inspisonted so as to block up the airpassages. It is currous to notice how the dry uncome membrane becomes absest instantly relieved by this means. After a few minutes use of the spray, a feather worked in the same solution neat be passed into the tracker through the silver tabe, so as to clear away loosened membrane and rancas. The introduction of the feather causes spasmodic cough, but this is not to be regretted, so the violent expedime action usually reheres the parient of large portions of membrane, and greatly aids in cleaning the tracker. If signs of obstructed breathing are noticed at any time, we may conclude that either the irrelea or the trachectomy tube is becoming obstructed or that the latter is displaced. Measures must then be taken at once to renedy the fault.

The inner tube should be removed every hour or two and cleaned win
a feather dipped in the warm alkaline solution. The outer tube will requite cleaning only once in the twenty-four hours. When it is removed,
advantage should be taken of the opportunity to puse the moistened feather
opeands into and through the glottis, so as to clear the upper part of the
woodpipe. At this time, also, the wound can be command for any unbealthy appearance. As a role, the outer take can be excluded for any unbealthy appearance. As a role, the outer take can be excluded in matter the
gother by inflammatory explation, and the orifice remoins patent abthe tube is with-frawn. After each eleming the tube should be replaced
by another of different length, so that the child may seen a short sail a
long tube alternately. If the tube he of silver, it should be examined for
black discolorations, as these are due to mortial action at the corresponding part of the wound, and will therefore, as Mr. Parker has pointed
out, be often valuable guides in indicating the parts to which our attention

After a few days, when fresh membrane has censed to be formed, we may make trail from time to time of the child's power of breathing through the glottis by closing the external wound with a finger. At first the

should be directed.

breathing is laboured, especially in inspiration, but in most cases the

glottis soon becomes accustomed to act again as an air-passage.

While the above treatment is being carried out, the strength of the child must be supported by julicious feeding. Strong most essence, pounded next, eggs, milk, strong ment broths thickened with arrowrest or sago, and flavoured if desired with turnip, should be given at regular intervals. Sometimes there is difficulty in persuading the child willingly to take sufficient nourishment; and sometimes the power of smillowing is impaired from puresis of the muscles of the pharyny. Sometimes, also, there appears to be loss of sensibility of the giottis, so that articles of food taken appear at the wound in the air-pipe. If necessary, therefore, food must be conveyed to the stomselr by an clastic tube passing through the nose (see Introductory Chapter, page 15). By this means the patient can be fell efficiently every three or four hours. Internal remedies, with the exception of alcohol, are better discontinued at this time. It is wiser to limit ourselves to the local measures which have been described for the relief of the local disease; and to trust to regular feeding and alcohol to support the strength of the patient and enable him to struggle successfully against the constitutional disorder.

The tracked congrature is necessary; for besides that it is not well to allow the glouts to continue a long time inactive, too pensistent retention of the take may be followed by elevation about the wound, necross of the rings of the tracked, and other accelents. In finally closing the wound certain difficulties are sometimes not with. The child having become accustomed to the use of the tube, and having a keen recollection of his sufferings before its insertion, is often nervous malipprobanies of a return of his dysphora. This very dread may be sufficient to interfere with the normal action of the laryngeal muscles. Before removing the tube altogether many attempts should be made, by withdrawing it temporarily and closing the opening with a pad of list, to accustom the child to breathe without its below. He should be also made to articulate under the same conditions (i.e., while the opening is closed), so as to bring the muscles of his intyny again.

into action.

The arridents which often interfere acrously with the final withdrawal of the balls are: inflammatory hypertrophy of the vocal cords, adlessed between the cords, granulations growing from the tracked wound or from the posterior will of the windpipe, paralysis of the posterior erico-arytencial muscles, spaces of the glottis, contrictal narrowing of the tracken. Sometimes it is only after much difficulty that the proper function of the diamol laryex is restored. Such cases are, however, exceptional. Usually after a few days the child becomes accustomed to do without the help of the tube and all apprehensions of a return of his dyspaces may be laid mide.

The chief danger and common cause of death after tracheology in membraness cross is the occurrence of pneumonia. If this unfortunate complication arise, warm positives must be kept constantly applied to the chest, and stimulants must be given freely.

If diphtheria of the external wound occur, it is hest treated by a careful attention to cleanliness, and by pointing the wound with a solution of

lactic acid (twenty-four grains to the ounce).

In the paralysis which often follows diphtheria the child should be removed to a brazing sea-side residence, and while there should be regularly shampood and be given buths of the sen-water. If a dip in the sen is too rigorous a shock for his weakened frame, the douche may be employed in the house after suitable preparation, as directed classifier (see Introductory Chapter, page 17). Quantite, iron, and strychnia are useful in these case, and the child should pass as much time as possible out of doors. Begular furnitisation is of service, especially in cases where the loss of power affects the nuncles of the larynx or those employed in respiration. In cases where there is complete paralysis of the nuncles of deglatition, and consequent mability to smallow, the child name he fed regularly with the stomach-inde passed through the nose. At the East London Children's Hospital many children have been saved by this means who were quite trable to take nonvolument, and who without this help would certainly have died of an anition.

When a thrombus forms in the heart and gives rice to serious dyspace, the child should be kept lying down; but buttles should be applied to the feet and if necessary to his sides; and diffusible stimulants must be given internally. Dr. Bichardson speaks highly of the hig ammonias (P. R), of which a few drops may be given with two grains of iodids of potassian swey alternate hour. If the heart's action appear to be falling, stimulants in large and repeated doses are indicated.

CHAPTER XL

ERYSIPELAS.

Excurrence is not often seen in childhood after the age of infancy has passed. For a short time after birth, however, there appears to be a special tendency, under favouring conditions, to suffer from this serious affection; and in lying-in brapitals the discuss is a not unfamiliar one. Amongst well-to-do families crysipelas but rarely attacks the infant, and in children's hospitals, even in those where quite young infants are admitted, in

is exceptional to meet with an example of this form of illness.

of the same morbific principle.

Cascation.—Erysipeles is in all cases a general disease of which the dermatitis and its consequences are merely the local expression. The malady most commonly affects new-torm babies at a time when purposal fever is prevalent, and is most liable to happen during the first six weeks of life. It is then apparently the result of a similar affection to that which attacks the mother; and the illness almost invariably has a fatal issue. According to Treasseast, besides crysipeles, purdent ephthalmia and infective perstenitis are common under the same conditions, and the three diseases must be regarded as various numberations in different subjects

But besides special poorperal infection, other agencies will act as predisposing causes of the affection. Unboulthy conditions generally will do this; and the complaint has been known to follow exhausting devangements and diseases, such as chronic digestive troubles and the arms speeific fevers. In some cases, however, no such influences can be discovered. to have been in operation. Such a case curse under my own observation. in my student days. A healthy infant of a week old had great difficulty in relieving his blooder, owing to a very morow peopetial orifice. The operation for circumcision was performed (not very wisely) by a young surgeon. Extensive erpsipelas followed, starting from the wound, and in a few slays resulted in the death of the patient. The shild was being suckied by a healthy mother. The purents were of the poerer class, but scenned comfortably circumstanced; and their residence was clean, and certainly presented no obvious insanitary conditions. Possibly in this and similar cases the erysipeles owed its origin to the use of imperfectly cleaned instruments in the operation.

The exciting cause of the effection is usually transcatic. The crysipeles may follow the operation of varcination, inflammation set up about the unfailtens, a burn, or the incentions application of a blister. It may develop around an intertrigo or attack a surface executated by the irritation of exercts. Some time ago a local outbreak of crysipeles occurring in a particular Lembor district was traced to the use of a widet powder extensively adultecated with white arsenic. Apparently idiopathic cases do, however, sometimes occur. Thus, Mr. Struguell has reported the case of a male in-

fant, aged eight weeks, in whom a patch of exysipeles appeared on the scalp and thence spread to the face, erms, and trunk. The child had saffered from no bruise or other injury, and nothing objectionable was discovered in the sanitary state of the house in which his parents were long-

Other cases of a similar kind are on record.

It seems possible that the milk of a mother who has lately suffered from erysipeless may communicate the discuss to her sucking child. Dr. Scholefield has reported a case in which a woman during a sharp attack of erysipeles of the face, neck, and scalp, gave birth to a son. As the labour progressed the crysipeles gradually faded, and when the child was born in trace of reduces remained. The mother was warned not to name larchild; but on the fourth day, as the secretion of milk was copious deput the infant to the besist. Twelve hours afterwards a red blink uppeared on the child's thumb and spread to the arm. This faded and the opposite arm become affected in the same way. Afterwards the sons symptom appeared on one of the lower limbs, and in the end a large alsees formed over the secrom and the child dued. The mother had as return of the crysipeles after delivery.

This was not a case of puerpend crysipelas in the nother, for the discase had not only preceded labour but had completely disappeared by the time the child was born. It seems probable that the poison was comnumicated by the mother to the infant through the milk from her breast. At any sate, it is difficult to say in what other way the infant could have

contracted the disease.

Mercal Anatony.—In the skin the infinmed surface is red, hard, and browny, with a well-defined margin. The reduces disappears on persons, and the hardness is due to accumulation of secure, lymph, and corpusels in the substance of the cutis and tissue beneath it. If the orders he copious, the part is dull red in colour, soft to the touch, and gits on present. The area of inflammation rapidly extends to neighbouring parts, and as it spreads the skin first attacked becomes less tense and browner in colour. Sensetimes the skin affection disappears from one part of the body and reappears on another without spreading along the surface. Thus, it may attack one limb, then fields in its first situation and break out on the coresponding limb of the opposite half of the body.

As a result of the inflammation, abscesses may form in the subcularscus tissue; and sometimes sloughing may occur in the skin or arcolar tissue. Often vesicles or bulks form on the inflamed surface, especially in

the arrere cases where there is subcutaneous alonghing.

In most instances of eresipeles in the infant, adjacent parts share in the inflammation of the skin. Peritocitie is common even when the derivative does not accupy the abdominal punctes. There may be also inflammation of other serous membranes—the plears, the pericardium, and the cerebral meninges. Sometimes the inflammation agreeds from the skin to other parts by direct continuity. Thus, it may past into the ear by the multipy mentus, into the case and throat by the month, zeros, and lachrymal-facts. In other cases, the disease begins in these deeper parts and extends to the skin by the same channels. In addition to the above morbid appearances, evolution of pilebilis, presument, and extends is often observed. Lately micrococca arounged in clusters, have been discovered by Politican in the lympitatic results of the affected peritions of the skin. This observer has even succeeded in artificially cultivating the organisms on general has even succeeded in artificially cultivating the organisms on general and others of these cultivated micro-organisms he inocalitied into arounds and others

into the human subject. In almost all cases a typical arysipches followed the operation in the person or animal experimental upon.

Symptoms, -The disease presents different characters according to whether it proces as a consequence of prosperal infection or is induced by

other causes.

In the first case the general symptoms are usually violent from the frut. A patch of bright redness appears on some part of the abdomen. usually about the pubes. The part looks somewhat swellen, feels hard and beaveny, and has a well-defined margin. The putch may be of limited entent, but there is high fover, and the infant looks ill, is restiess, cries frequently, and is evidently in great para. By the next day the area of redness has become widened; the fever continues; the fontunelle is depressed, and the patient sleeps little and is very restless and feeble. The crysipeles continues to extend. It passes downwards to the lower limbs and upwards over the trunk; the belly usually becomes fuller and may be temponitie; comiting and distribute come on, and a joundiced line of the skin may be observed. After a few days, the child fulls into a state of collapse and death may be perceded by convulsions and come. In this form of the disease the duration is sometimes very short. A child who appears to be bruilthy and sigorous when first attacked regidly falls into a state of prostration and may dis in a few days. The illness mor, however, hat for a longer time. The colour of the infinned surface then becomes deeper and more purple, bulks appear on the surface, abscessor form in the inhestaneous tione, or gangrenous alonghs may destroy considerable portions of the skin. Infants uttacked by the prerpend form of crystpoles are usually under two weeks old, and the illness is almost invariably fearl

When erysipshs occurs as a result of other curses than pureperal infection the vary symptoms are less violent. The local affection generally began about the generals, the pulses the anns, or the lower part of the abstonen, and spreads there in various directions. When it extends widely, the parts of the skin first affected become paler, but are liable at any time to a return of the redness. The child has a pale pinched face, but may continue to take his food, and his direction is often fairly good. In other cases, he refuses the bottle or breast, and may be troubled with frequent vomiting or looseness of the barels. The temperature is high, at night it rises to 160° or 105°, sinking to 101° or 102° in the morning.

Complications often occur in these cases. Abscesses may form in various parts of the body; gaugernous sloughing may strack the skin; paramonia may secur; as the inflammation may pass directly to the peritoneum through the recently located umbilities, or to the larynx and throat. An infinit mater six mouths old was brought to St. Thomas Hospital and almitted, under Mr. Croft, for crysipelas following vaccuation. When seen, the whole covical region and part of the chest were the sout of ordenators errapelas, and there was great drypman uniform symptoms of croup. The child was placed in a warm lattle and a dose of specarcumba wine was given to produce woulding. These measures relaxed the child for a time, but in the evening the drupous returned with such intensity that trackersomy was performed by the Surgical Begintar. After the operation the infant coughed up small pieces of cartilage—probably from the rings of the tracker. Eventually be recovered.

Whether the discuss be idispaths; or arise from transative corrective gravity appears to be the some. In the first case the appearance of the special symptoms is often preceded by signs of derangement or sluggish-

nees of the digestire organs. In Mr. Strugpell's case, before referred to, an infant of eight weeks old laid been a fairly bealthy child, but for ten drys or so had been passing very firm, pale, pasty-looking motions. The child was suddenly taken with sewers symptoms, and when first seen was bring with his head thrown back and his thumbs twisted inwants upon his palms, but there was no retraction of the abdomen or strabismes. The pupils were equal and acted to light, the pulse was mind, the tengerature was normal. On examination slight ordenn of the scalp was noticed on the occipital hone, but there was no redness. On the next day the colemntous part was red. On the third day the combral symptoms lad subsided; but the expensels had spread to the forelead and down the back of the neck. Afterwards it extended over the face, arms, and trunk A vesicle the size of a filbert and filled with clear serves formed over the left ellion, and another appeared a little later on the thigh. As the discase advanced, the abdressen became distended and tymponitic, and the breathing opposed. No mischief was discovered in the chest. The dill sank and died on the seventh day.

In this case the early cerebral symptoms (retraction of the head and twisting in of the thumbs) were probably symptomatic of the general discase and not of any special intra-crunial complication. They were of short duration and quickly disappeared when the skin affection because marked. The tympanites and embarrossment of breathing were, no doubt, due to the occurrence of peritonitis. Premonitory symptoms, such as were found in the above instance, are not common. Usually the first indication of ill-

health is the occurrence of the entaneous redness and swelling.

In traumatic cases the duration of the disease is often considerable. The illness may last two or three weeks, or even longer. Becovery is not a frequent termination, and usually death is brought about to one of the usual complications to which these cases are liable. If none of these occur, the case may end frequently, even although the even pelas has spend extensively and involved the greater part of the surface of the body. The subsidence of the cutaneous inflammation is followed by desquaration of the epithelium in the portions of skin affected.

Dispects.—The miture of the disease can scarcely be misupprehended. A patch on the skin of bright reduces, which feels beauty to the touch and is perhaps relevantous, spreads continuously over the surface, and is bounful by a well-defined margin—these local symptoms combined with the secret general disturbance and high fever, make the diagnosis of crysipelas in

ency matter.

Process.—When experience occurs in an infant of a week or furnight old, as a result of puerperal infection, the prognosis is most serious. Very few of these cases recover, although Trousseau Las stated that in cases where abscesses have formed extensively, and in these cases only, he has known life to be sweed. Consequently he regarded the occurrence of al-

scesses as by no means an undersurable symptom.

When the discuss arises as a result of other causes the child's proports are more hopeful, and are brighter in proportion to his age, he general strength, and the healthfulness of his surroundings. Of fortythree cases collected by Dr. Lawis Smith sighteen recovered; but of the cases of recovery in only one was the shiftly compar than three morths. If the discuss attack no infant during the first two or three weeks after light, death is almost certain. After the age of all months the proportion of recoveries is greater than that of the deaths.

In all cases the occurrence of a serious complication greatly reduces the

child's chances of escape, and if peritonitis occur, we can have little lope of a favourable issue.

Treatmest. —In cases where the disease arises from puerperal infection treatment has been found of little value. Alcoholic stimulation and the administration of ammonia and bark may be useful in supporting the strength, but local treatment of every kind appears to be useless. It would be advisable in these cases to make trial of bemooste of soda-a salt which has been highly praised by Dr. Lehnebach for its value in puer-peral fever in the adult. Two or three grains might be given to a child of a week old every four hours, and if the fever twee very high, one or two grains of quinine might be added once in the day to a doze of the hencute.

In cases where no puerperal infection is suspected, the child should be made to take the tincture of perchloride of iron in frequent doses. For an infant of three mouths old five drops of the remedy may be given in gigcorine every four hours. At the same time the strength should be sup-ported by a cureful dist. If the child be at the breast, the mother's milk is no doubt the best food he can take. In addition, he may have a tenspounful of the brandy-and-egg mixture two or three times a day if his fontanelle is greatly depressed. As long, however, as the strength continnes good there is no necessity for stimulation. If the patient be hand-fed, care should be taken that his milk is diluted with barley-water or thickened with gelatine; and the stook must be inspected to see that undigested card is not passing away from the bowels. If this be so, the milk should be diluted with half its bulk of burley-water or an calcia; and should be aromatism! by the addition of two teaspoonsful of an aromatic water to the

bottle. Mellin's food, white wine whey, etc., may also be given. With regard to local treatment, immuserable applications have been

recommended. Most of these are sedative or antiseptic. Thus, the influxed part may be arounted with an continent composed of equal parts of extract of belladonna and glycerine, and covered with cotton wool. The application of oil of inspentine has been recommended by Hastreiter. Camazani speaks highly of brushing the surface with a lotion composed of one part each of camphor and tunnin to eight parts of other. Painting with tincture of isdine is advocated by some, and with a solution of earbolic acid by others. Heppel states that the spread of the inflammation may be limited by painting the skin at the circumference of the patch, and for a finger's breadth on each side of it, with a ten per cent. solution of earbolic acid. The brush should be used until a distinct staining of the integument has been produced. The plan recommended by Hueter, of injecting subcutmeously around the margin of the putch a three per cent. solution of carbolic scid, is inadmissible in the case of a young child, in whom symptoms of earbolic acid possoning would be easily produced. Endeavors to limit the spread of the errsipelas, by a line drawn on the skin with nitrate of silver just beyond the margin of the inflamed patch, have been found to be useless. In the child such a proceeding is to be strongly deprecated, as its employment has been sometimes known to lead to the formation of troublesome some upon the surface.

An important element in the treatment appears to be covering the inflamed surface from the air. Recently, Mr. Barwell, reviving an old method. Ins found the atmost benefit to result from covering the affected area with a thick coating of common white head house-paint, renswing the application as often as any crack appears on the surface of the paint. This plan of treatment seems not only to relieve the pain quickly, but also to reduce the temperature and favourably influence the general eyuptoms.

CHAPTER XII.

WHOOPING-COUGH.

Wiscorps-cross, or pertussis, is an infections disorder in which enture of the air-passages is combined with nervous symptoms which may assume very serious proportions. The affection occurs in epidemics and may attack the compost infants: indeed, searchines it appears immediately after birth. In such young children whooping-cough, even when not of a grave type, may cause serious consequences. It is principally diagerous, horever, through its complications. These are masseous, and often appear towards the end of the disease, when the patient's strength is reduced by

the length and screnty of his illness.

Cheartics.—The disease manily occurs in epidemics, and appears to be emmently infectious. The channel of infection is the breath and expectsration; and the varus is capable of being conveyed by the almosphere or even by the clothes. Children of all ages are very susceptible to the infections principle. The disease is excessively common under two years of age, very common, even, during the first twelve months. Unfortunately, I have kept no systematic record of the many cases of whooging-cough which have passed under my notice, but in eighty-nine coars of which I have preserved notes no less than twenty-four occurred in infants during the first year of life. Even this proportion probably represents imperfectly the frequency of the disease in young bulies; for in such subjects the spaceholic stage is often absent. Dr. R. J. Lee is of equation that infants enffer from portuous much more frequently than is supposed, and asserts that in a very young clind a whoop ought rather to excite surprise than to be looked upon as an ordinary symptom. This is, perhaps, an extreme statement, but there is no doubt that in indicate the discuss frequently assames the form of an obstitude polynomry extern with but little largeged spans. After the tenth year the disease becomes very rare; but it may be were at any time of life, even, as is well known, quite at the close of extreme old sere.

Who ping-cough seems to be more common in the spring and autum than in the other seasons of the year, and the epidemic is often found to precede or to follow quickly upon an epidemic of meades. A patient who has passed through one attack of who oping-cough is in little changer of his allness being repeated, for a second attack in the same subject is rare. The infection, however, lasts for a considerable time after the whoop has consed to be heard. Dr. Squire is of opinion that at least are weeks should be allowed to slapes before the patient can be trusted to associate with

healthy children.

Pathology.—Examination of the body in a fatal case of pertansa reveals
nothing to account for the special nervous symptoms which impart its most
characteristic feature to the characteris

within the glottis, of the truches, and of the broachi and their ramifications. We also find certain consequences produced by violence of cough and spann, viz., polynomary rollague and emphysems. In addition, we usually meet with some other morbid changes due to the complication by means of which the fatal issue has been brought about. Thus, there may be serious congestion and even extramastion of blood into or upon the brain, and sometimes signs of thrombosis of the intracranial sinusces, shown by colouriess clots of laminated structure affecting to the walls. The large may be the seat of catorrhal paramonia, and occasionally small composations are seen here as in the brain. Moreover, there is shows invariably culargement of the broughial glouds, and the under surface of the

tongue may be nicerated more or less extensively.

No satisfactory explanation has yet been given of the real mature of the complaint. That the disease is due to inflamention of the promogastric narve has been shown to be erronsous. Pressure upon the same nerve by calarged glands may be rejected for the same reasons which render that explination of the phenomena of largegistims strainles an insufficient one. In some respects the affection resembles a symptic discuse; in others 4 heurous. Some writers consider the complaint a purely catarrial one; others lay most stress upon the nervous symptoms. That the discuse is something more than a more entarrh is shown by the infectious nature of the secretion thrown of by the musous membrane. In 1870 Letzench believed he had discovered a species of Imagus in the spotum, and supprood that this was the muchid material which carried from one person to another, settled upon the muceus membrins of the air passages, and by its irrination gave rise to the spaumotho symptoms. Other observers, however, have not confirmed this alleged discovery. More lately Dr. Curl Burger, of Bonu, has described a harillus which he has found in the expectoration of children suffering from whooping-cough, and states that it is peculiar to this complaint.

The neurotic character of pertussis is shown not only by the laryngeal spaces, but by the violent agitation into which the cickl is thrown during a paretysm. When he feels the desire to cough becoming irresistible is clotheles at his mother's dress or the nearest object espaids of giving support, and his whole body is agitated by a convulsive trembling. This agitation is usually attributed to terror, but it is more probably the consquence of a general nervous committion which, carried to a higher pitch, may become a genuine consulsive seizure. A distinguished physician who was attacked by whooping-cough after modified life, in describing the nervous agitation induced by the spasm, assured me that in the pareaysm be required all his self-control to avoid beating with his feet upon the flow. It seems, therefore, that the neurotic element of the disease is something more than a more nervous spasm of the laryer and displicagin. There appears to be a general agitation of the whole nervous system, which may be more or less pronounced according to the severity of the attack and

the inherent susceptibility of the child.

Symptoms.—The incubation period of pertusus is difficult to according on account of the uncertainty as to the cract day upon which the discusse can be said to begin. It has been estimated at from two to seven days.

Other observers are of opinion that it may last a fortnight.

When the disease begins we find the symptoms of enturch of the sirpassages. The eyes are slightly injected, there is smalling and increased acretion from the most and the shall soon begins to cough. There is some fever, the temperature usually rising to 100°, and the pulse is quickened. In a day or two there may be in addition some increased rapidity of breathing. If the catasrb affect the gastric nuccus membrane, there is loss of appetite and the stald may be languid and mope. The symptoms resemble those of an ordinary catarrh, but their specific character may be sometimes detected by noticing the unusual obstinary of the cough. It is repeated at vary short intervals, and sometimes is almost in cassant. This catarrhal stage lasts for a variable time. It may occupy only a few days or may be continued for several weeks. The symptoms usually increase in security as the days go by. The sough becomes more treathlessoms, and is worse at night than in the day. If the child is off enough be complains of a haractery tickling in the throat; and then is often elected violent anseeing, with the ejection of much ropy mucus from the times.

After a time a change in the character of the cough shows that the spasmodic stage has begun. The cough occurs in paroxysms, and has such a distinctive character that it at once betrays the nature of the child's complaint. It consists in a number of short backs, following so rapidle upon one snother as to allow of no impiratory effort. As these centime, the child's face turns from red to purple, and seems to swell and darken at the same time. At length, when the lungs are almost exhausted of their air, and the patient seems upon the very point of suffication, air is at last drawn in with a long, deep inspiration, accompanied by the characteristic "kink" or whoop. Immediately, however, the cough begins again; and in this way the long rapid expantory cough, the signs of immenent asphyxia and the slower whooping impostion may be repeated several times before the expulsion of a large quantity of thick tenacious phlega from the mouth, and perhaps the ejection of food mixed with ropy muchs from the stomach, announces the end of the attack. The child, then if an infant, sinks back exhausted and perspiring in his mother's arms, and if the cough do not return immediately, usually falls into a heavy skep. An older child seems a little languad, but if the paroxysm has not been severe, may return quickly to his amossment. If, on the contrary, the spaces has been prolonged, he may seem dull and confused for a time, and may complain of headache.

During the fits of coughing the pulse becomes very maid, and is almost uncountable. If we laten to the look at this time we have some alight whereing in the large sir-tubes during the expiratory cough; but during the long-drawn inspiration any slight residual sound which might be heard is covered by the noise of the whoop. In the internals of the cough associlation in an uncomplicated case merely reveals a few large bubbles

mixed up with dry wheezing sounds scattered about the lungs.

When the purceyons are violent they are a cause of great distress to the patient. This is well shown by the efforts a young child will make to keep them back. He may be noticed, while on his mother's lap, to hold to breath and six perfectly still in the loops of repressing the cough. When he feels that the impulse is getting beyond his control his face become congested, his brows contract, and event breaks out on his forchead; and as the convulsive expiratory efforts begin, he clutches at his mother's dress and often trembles all over with nervous agitation. During the paretyen the straining may produce rupture in a child predisposed to hernix; and homographe from the intense congestion induced is a common sympton. The bleeding may take place from the eyes, the ears, the nose, the morth, and sometimes from the lungs. Cracks about the hips and sore phees on the gums almost always bleed during the fits of coughing. Episantia is very common. When hamorrhage occurs from the nose the blood does not always flow forwards through the nostrils; often it passes backwards through the posterior nares into the throat. It may be then availanted and discharged as black matter by stool, or be comited after the next attack of cough and cause great alarm. In other cases the blood syntates the glottle and induces a fresh pareayan. It is then expelled with the

cough and is supposed to come from the lungs.

The number of purocyams that occur in the twenty-four hours varies very much according to the severity of the attack, and partly, too, according to the number of disturbing causes to which the child is exposed. In severe cases, where the slightest emotional or other influence will induce an attack, the number may be considerably diminished by quiet not judicious amissment. The child often coughs more in the night than during the day, for the occurrence of the scirmos appears to be favoured by the recumbent position. Between the parocyams, when the spasm is violent, the child's face may remain permanently congested. The even are red and often bloodshot; the syclids are heavy and swollen; the face and lips are dull red; there is a dusky tint round the mouth and under the eyes, and the veins of the neck are fail.

The attacks themselves vary in character. The whoop may be entirely
absent throughout the disease. This is said to be common in very young
infants. The number of expiratory efforts is very variable. Usually there
are only two or three, but they may be much more numerous. As a rule
the coughing fits are longer at the beginning of the spasmodic stage, when
secretion is thinner and less copious, than at a later period, when it becomes
shoulant and more tenseious. After the whoop has lasted a formight it
grows less violent and is less frequently heard. It only occurs with the
more violent fits of coughing, and in the milder ones the breath is drawn
more quietly and with greater case. At the end of three weeks or a mostle
it becomes very rare, and the complaint may then be said to have passed
into the stage of decline.

The whole time occupied by an attack of whooping-cough varies from a fortnight or even less to two mouths or longer. The duration is often difficult to ascertain, for after the spannodic cough has disappeared and the discuse has again come to assume an ordinary external type, trifling accidents, such as a chill or an error in diet, may set up more active syngtoms, and the whoop may even return for a time. In this way the com-

plaint may be prolonged for many weeks.

Complications.—There are certain accidents attendant upon the complaint which may be a cause of distress or danger to the patient. Sublingual ulceration is common; hasmorrhage may be copious; the comiting may greatly interfere with nutrition; bowel complaints may supervene; the nervous symptoms may be exaggerated; and various pulmonary discuses may cause and, if they do not prove fatal, injuriously affect the future welfare of the child.

The reddingeral alterration has been before referred to. It occupies the fremum of the tongue and may extend for some distance on each side of the middle line. The sore may vary from a mere abrasics to a deep feature with a gray or yellowish surface. It is only soon in cases where the child has cut the lower incisors, and is the direct consequence of the scraping of these teeth against the under surface of the tongue as this organ is protraded and withdrawn during the paraxyons of cough. Blood often exudes from the abraided senface towards the end of a paraxyon. The ulter is not a constant symptom. It never appears before the spannodic

stage, but may then be seen as early as the fourth day of the whoep. It is most common in infants who have cut the two central lower incisers and no other beeth. In children who have cut all their beeth the symptom is much less common.

Howeverings must not be looked upon as in every case an undersail socident. When the spasse is violent and the congestion of the head and face extreme, the relief afforded by a discharge of blood from the distended vessels of the nose is no doubt often a salutary incident. If, however, the hemorrhage occur bropocatly and be very copious, great wealness may be occasioned; and if the child be already reliced by the violence of the netacles and the deficiency of nourislmant occasioned by repeated woulding the base of blood may be an additional reason for maxiety. Require of recess's checkbore then in the nose seldom occurs to my extent. Blood specied from the menth during whooping-cough comes almost invariably from this source. Hemophysis is usedly seen, for blood scroing up from the longs after an attack is usually scalloared by children, and is seldom, if over, sufficiently considerable to be a source of danger.

Hymorrhage may also seem into the subcataneous connective tissue of the cyclids and that beneath the conjunctiva. The eyes are often Boxdshot from small sychymoses, and occasionally we see little categoristics.

in the thickerol evelils.

Howeverhage from the sure is the consequence of rupture of the tynpanic membrane. Several instances of this accident have been recorded. It is occasioned by the blast of air which is forced through the Eustachian talls during the fits of coughing, and a certain amount of blood sandss from the term surface. In two out of four cases published by Dr. Gibb the rupture occurred in both cars.

In very race cases homorrhage has been noticed in the brain and its

mentiones, cousing death,

Certain digestor troubles may arise. Vomiting at the end of a fe of compling is a handlar symptom. Usually it is of little consequence. If, however, the attacks of cough occur very frequently, and are followed in each case by sickness, the child's suttrition is visibly affected, for almost all the tool taken is vomited before there is time for digestion to begin. Even if conditing is not excessive, there is often considerable interference with notation, for the external condition of the gastric mucous membrane is ill adapted to further beauty digestion. In many cases, no death, the tough mucus which could the wall of the stomach prevents the food from being properly mingled with the digestive jaices. It is not uncommon, as M. Billies long are pointed out, for food to be vomited lattle changed sweet allows after a need. On account of the nuceus flax in the lovely waveres are a frequent complication, and distribute is easily scribed. A certain means of bosoness of the bowels is present in a large unjointy of the cases of pertiness, and considerable quantities of mucus are passed in the stools.

Necessal accidents form a very important class of complications. Sometimes the large-pal spaces is exaggerated. It is not uncommon to see a class at the end of the long expiratory cough, instead of at once beginning to whoop, seems for some seconds with darkened face, staring eyes, and open mouth, making agitated movements and uninly striving to overcome the spaceholic contraction which is closing the entrance to his lungs. If prolonged the space while greatly to the gravity of the case, and may even determine the fatal issue. This is especially likely to happen if the perturns is complicated with serious lung mischief. In a case which came under my own notice—a child of seven years of age, both of whose lungs trees the sext of enturnal pacumonis—the spanus were very violent and prolonged, and in one of them the patient died. In a case recorded by Drs. Meigs and Pepper, whooping-cough complicated a case of laryngianus stradulus, and the child died in a spanu. Sometimes the patient falls into a state of syncope from which he can be roused only with the greatest difficulty.

The sens-suply visted state in which the putient is often left after a sectore percession of cough may be a cause of general convulsions. Eclamptic attacks, indeed, often complicate pertussis; but although their occurrence should give rise to great auxiety, the sentures are not necessarily fatal. If the convulsion he the consequence merely of deficient scration of the blood, the return of free respiration removes the danger for a time; but if the same condition be frequently renewed, the child's state is a very anxious one. So, also, convalsions excited by embolisms or congestions of the cerebral vessels, thrombosis of the cramil sinuses, or diffused collapse. of the lungs, are very serious. These generally occur late in the disease and are almost invariably fatal. There are two forms of echangein liable to happen which are less dangerous. One of these is due to an exaggration of the nervous excitement which is an ordinary symptom of the disease. In highly sensitive children it is probably not uncommon for convulsions to take piace from this cause, especially if the strength has been quickly reduced by copious episteria. So, also, the onset of an inflammatory complication is often indicated by a convulsive fit, and these attacks, like the preceding are often recovered from. If, however, a convaluite fit occur late in the disease, when there is much comolidation of long, the child seldom recovers. In connection with this subject it is well to remember that convulsions occurring in the course of whoeping-rough may be due only indirectly to that disease. The tendency to eclamptic attacks which is common in early life is, no doubt, heightened by the state of neryour excitement in which the system is maintained by the illness. At any rate it is common, especially in rickety children, to find convolutous superrene in the course of trhooping-cough upon very slight gustric or intestinal irritation. Convalsions occurring in pertussis without being followed by ill consequences may be, no doubt, often attributed to this

Another important group of complications consists of the pulmonary lesions which may occur in the course of whooping-cough. These, on account of the nature of the complaint and the tender age of the patient, are realily excited, and often bring the illness rapidly to a closs. In fact, the liability to these accidents constitutes in most cases the chief danger of the discour.

Colleges of the lung is one of the commenest and most fatal of these complications. In a severe case of whooging-cough in a young child this are drawn may impen ut any time. Indeed, it may be said that at the end of every violant parcayan of coughing the patient is threatened with college of the lung, for all the conditions which conduce to this director are present together. Thus the spannodic cough almost emphies the lungs of air; the repy nucles in the tubes offers an obstacle to its re-entrance, and the state of exhaustion in which the patient is left weakens the force of the impiratory set. The mechanism of collapse of the lung and the symptoms and signs which result from it are described at length in another place. It will be sufficient here to remark that the occurrence of collapse is often indicated by an attack of convulsions, and if the area of lung affected be

large, sudden death may even ensue. In the less serious cases the child lies back with his head low; his face is pule or slightly livid and covered with a cold sweat; the cyclids and lips are dull red or purple; the naves set, and the responsive are frequent and shallow. There is no fever; often the temperature is lower than natural. On examination of the chest we find a little dulmess at one or both bases behind; the breathing is breached, and sometimes loose cracking rhouchus may be bound at the lower part of each large. The whoop generally ceases when colleges occurs, but the fits of coughing continue, although in a so diffed form, and add greatly to the exhaustion of the patient. These cases almost invariably and in death. The child lies quietly, as if unwilling to stir a muscle. He takes food with difficulty and seems afraid to swellow. If lifted up suddenly be may die

from syncope : often the end is preceded by a coprobion,

Bronelytis and catarrial passumona are other common consequences of whooping-cough. The pulmotury enturn, which is one of the characteristic features of the discuse, is easily aggravated, and readily invades the smaller tubes of the lung. In a young shald, too, a broachitis seldem remains a beonelalis, but the inflammation quickly travels to the fine beonelacles and no venicles. Thus a catarrhal presumenia is easily set up. In a severe case of portroois the breathing becomes more and more oppressed and the face more and more lived as the caterrial inflammation extends itself; but when the terminal lubes are reached and entarrhal presumons begins, the change is at trice amounted by new symptoms. The whosp ceases; the bemperature rises to 102" or 103"; the breathing is quickened and laboured, and the pulse-respiration ratio is perserted; the face is livid; the nares are widely expanded. Although there may be no percussion dulness, a physical examination of the chest reveals some of the signs connected with this disgerous condition. Sometimes a fit of convulsions ushors in the complication If the pneumonia be extensive the child generally dies. If it be moderate. and the attack of whoeping-rough be nearing its close, he may recover, but his life may be said to hang on a thread, for the occurrence of a little collapse, still further reducing the amount of breathing space left to him. may at once determine the fatal assne.

Emphysican of the lung, which often occurs, is a complication of little gravity. It usually occupies the upper tobes and unterior borders of the lungs. It is produced mechanically by foreible distention of the six-resicles, sir being driven from the lower parts of the lungs into the upper portions during the spasso-dic cough, or rather during the violent confractions of the displangua which immediately precede the cough when the glettis is closed. In the severer cases there is some dilatation of the smaller brought as well as of the nir-cells. The condition is an acute one, and usually subsides when the disease passes off. In scrofidous children

however, it may remain as a permanent lesion.

Of these complications employeems is one of early occurrence. Colhapse and catarried pneumonia occur late in the discuss, as a rule, when

the child's strength is reduced and his nutrition impaired.

Besides the above accidents others may occur. Laryngitis is seen sometimes, but if not severe adds little or nothing to the danger of the case. Pleurisy and pericarditis are occasionally found, but these do not like the preceding, follow naturally from the complaint, and are not often met with.

Separks.—When the disease has passed off consequences, local and constitutional, may be left behind. Any disthetic taint, previously decrease, is often roused into activity. Serofulous children may become subject

to chronic discharges, inflammations, and other signs of that constitutional condition; syphilis in babies may first manifest itself during or after an attack of whooping-cough; and acute tuberculosis is a not unfrequent sequel to the disease. Mendes and pertussis seem to have a certain affinity in that they both produce an especially injurious effect upon scrotalous children. In such subjects chronic caseous culargements of the servicul and bronchial glands are common; enterrial inflammation of the large trads to pass into a chronic stage and produce serious markied, and chronic bronchitis with emphyseum may make the child a permanent invalid. Acute tuberculesis, when not the consequence of hereditary distribute tendency excited by the occurrence of whooping-cough, may be set up as a result of softening of caseous bronchial glands, and this at a considerable interval of time after the primary discuse has come to an end

Besides these constitutional conditions there are other local conse-

quences of whooping-cough which it is important to be aware of.

Laryngismus stridulus is sometimes a relie of the disease, the spann persisting although the other symptoms have ceased. This is not com-

mon, and probably only occurs in the subjects of rickets.

Children who have lately passed through an attack of whooping-cough are often slow to recover their strength and healthy appearance, even although they are innocent of any disthetic taint, and have no close affection to set up perexia sual be a cause of weakness. A group of symptoms is often noticed in such subjects which I have elsewhere described under the name of "mucous disease," and which indicates a marked degree of impairment of nutrition. The child is languid and pale, or last a dingy nallow complexion; he loses tiesh, is easily tired, and sleeps badly at night. There is often some discolouration under the eyes, and the complexion may turn suddenly glassly white, as if the child were going to frist. Often he does frint; and he frequently complains of a stitch in the side and is subject to flatulent point about the belly. The tongue presents a peculiar appearance. It has a glossy sliney look, is often conted with a thin gray fur, and the large popills at the sides, although not prominent, are unusually distinct. A curious irritability is a characteristic feature of the disorder. The child is supricious and fretful, and often cries without cause. He quarrels needlessly with his brothers and sisters, and is sometimes quite a forment in the nursery. At night he dreams and often wakes up in violent panis. The "night terrors" of children usually occur in the subjects of this derangement, and sometimes the child gets out of bed and wanders about in his sleep. These symptoms have no regular progression. They are better and wome. Sometimes the child seems almost well; then, in a day or two, he is us had as ever. The patients are subject to what are called "bilious attacks." They are seized soldenly with vomiting and purging, which lasts for twenty-four bours or a day or two, and at these times get rid of large quantities of thick sengus both from the stemach and howels. After this relief they seem better for a time. They are less irritable and languid, their temper improves, and their rost at night is no longer disturbed. After a few days, however, the symptoms return, and continue until they are again relieved in the same way. As a rule, the bowels are rother costive, and an apenent always brings away much mucus with the stools.

These symptoms are due to a continuance of the macons flux from the

nlimentary camil which is always present to a greater or loss degree in cases of pertursis. This ecuious alkaline servetion acts as a ferment and causes an acid change in the more fermentable articles of food. The seil thus generated partially congulates the mucus, so that this forms a that coating round the interior of the directive tube, and also covers the masses of food swallowed. Consequently a proper admixture of food with the gastric juices and other digestive fleids is interfered with, digestion in slow and imperfect, and of the fool which is digested only a small part is brought into contact with the absorbert vessels. The child consequently gets there and paler. He is unease on account of flatalent pains from guers disengaged in the process of fermentation, and irritable on account of the excess of scial with which the system is charged. In bed cases the emissistion may be very great, and although the appetite may be luzz, the food taken seems to be, and often actually is, nearly useless for purposes of untrition. Commonly, however, when the derangement is severe the appetite fails, and great difficulty is found in persending the child in take any neurishment at all. Purseitic worns, which find in the alkalise mnors a congenial nishs for development, frequently complicate this derangement, but it is to the digestire disorder and not to the worms that the

symptoms are really that.

Physican -It is often very difficult to say whether or not a chibi las At the beginning of the cataortal stage a diagnosis get whooping-cough. is impossible. At this early period we can only detect the signs of cuturit, and unless the complaint is hargely prevalent at the time, or other children in the house are enfering from portusois, there is absolutely nothing to make us even suspect its existence. Often, towards the end of this stars. the frequency and peculiar violence of the fits of coughing may rouse our suspicious, and if a granius paroxysta occus, doubt, of course, ceases in be possible. But although fully developed whooping-cough controt be mistaken, the modified form of cough which is often all that we man detect may be coully ministerpreted. A more or has prolonged cough with a faint whoop from slight bryngeal spasm is not very uncommon in a child suffering from thest complaint, and an abortive pertussis may sometimes give rise to no more characteristic symptoms then these. In making the distinction to arguments drawn from the acuteness of the attack or the early period at which the cough assumed the spannedic character can be relied upon, for modified pertussis may be as slight and transient as any mere pulmonary cutarric. It is of for greater importance to notice that in a mild form of whooping-cough the general health is good, and that m examination of the class reveals little deviation from the normal state of things; while a chest affection sufficiently serious to produce an imilation of whooping-cough will injure the general health and modify the physical signs. It is usually in estserhal pneumonia that this riolent prolongel cough is noticed. In such cases we find the symptoms and physical signs of this discuss, and we exclude pertussis by semanking that the cough did not become peroxysmal until the cheet disease was well developed. In a case of real pertusses with accordary catarrial postmenta, the characteristic rough is very much modified immediately the complication began Paroxysus of violent cough with some spasm of the laryax are offen toticed in coes of enlargement of the bronchial glands. But here we get other signs of pressure upon the pneumogentric nerve : the breathing is more or less oppressed and the voice is thick and hourse between the attacks of cough. Bondes, the venous radicles of the face, neck, and civil are usually more visible than natural from pressure upon the innestiant

vein; there is no expectoration of ropy mucus; and the disease is not

capable of being communicated to other children.

When convulsions occur in a case of schooling-cough it is very important, with a view to prognosis, to ascertain their mode of origin. If the convulsion is symptomatic of the onset of an inflammatory complication, it is accompanied by a rise of temperature and followed by a diministron in the spasseodic symptoms and a modification of the physical signs in the class. If it amounces the occurrence of collapse of the long, the classe-

teristic semptoms which muck that losion will be present,

If the convalsion arises from exaggeration of the nervous disturbance which is one of the peculiarities of the disease, it will have been preceded by signs of museual agitation in former fits of coughing. Such setsures are only seen in children known to be nervous, sensitive, and impressionable; they follow immediately upon the cough, and between the nitricks no signs of nervous disturbance remain. So also in the case of convulsions anxing from partial asplayane; the nervous attack is excited by extreno violence of space, but after the fit has passed off no signs of corolard lesion are left behind. If, after a fit, there is squinting, drowsiness, stupor, or other sign of nervous disturbance, we may fear that congestion of brain is present or that thrombosis of the corebral sinuses has occurred, and should watch the case with grave apprehension.

Programs.—Whatever be the age of the child, the prognosis is Issuerable so long as the discuse remains uncomplicated; but if a complication arise the prospect is less hopeful, and is a very young child any addition to the normal course of the complaint is to be regarded with assisty. Consulsions, broachitis with collapse, and catarrial pneumonia are the

principal causes of an unfavorable issue to the disease.

In the case of convolutions, if the attack can be connected with nervous agitation or the caset of an inflammatory complication, or if, after the fit, the child seem bright and well, there is still room for frecurable anticipation. If, however, the scirure is symptomatic of diffused pulmonary collume; if it occur in the course of an extensive pulmonary inflammation; or if it be followed by drownings, squinting, or sign of corelinal lexica, there is little prospect of the club's recovery. Sometimes we can unlicipute the perurrence of convulsions. If we find the child to be nervous and ingressionable, and we notice that he displays unusual agetation and excitement on the approach of the pareavan, we may be prepared for an attack. So also if we find that the face becomes very blue during the cough, and that the spasse of the larvax is unusually prolonged, we may fear that an exhauptic attack may enese. Leavagismus strainles, as it supplies an additional obstacle to the advation of the blood and tends to promote collapse of the lung, is an unfavourable sign. If it occur is combination with extensive lung mischief, the prospect is a very hope-James comes.

If the pulmonary enturns becomes aggravated, the presence or absence
of rickets is a very important matter. Softening of ribs is a great obstacle
to efficient breathing; and if the presence of thick amoust in the tubes prevides an additional superlineant to the entrance of six, the occurrence of
collapse is imminent. If, with this, the speams are violent, and the child
seem much exhausted at the end of the fit of coughing, collapse of the long
may be considered inevitable. In such a case the prognosis is a very

gloomy one.

If the enterth pass to the small sir-tubes and resides, and set up covarrhal precumonia, the state of the child is serious. Still, if the patient be of healthy constitution and the pertussis of comparatively mild type, he has a clambe of recovery. In a nickety child the prospect is very laid. In one of scrofulous constitution, if he no not succumb immediately, there is every likelihood that a chronic consolidation of one or both lungs will be left behind.

Frequent.—The treatment of whooping-cough resolves itself into general measures for preventing complications and furthering the normal working of the animal functions; also, in special treatment for shortening

the disease and diminishing violence of spassa.

If possible, the child should be confused to two recess opening into me another, so that he may inhabit them alternately, and get the benefit of efficient ventilation. Draughts should be avoided, and the temperature be kept as nearly as possible at 65° Fahr. If the rooms have no door of communication, the child should be taken from one to another, wrapped from head to fact in a blanket. Next, quiet and the avoidance of all sources of emignent and irritation should be enforced. If old enough to be musted quiet games and picture-books may be supplied; and a teachable child is not to be worsted with lessons if he is disanchized for them. His dress should be suitable to the season, but have arms and legs must be forbidden, and the chest should be covered with cotton weeking if the weather

In regulating the diet care should be taken not to overlead the stemach. Four small meals are better than three large ones, and attention must be paid to the patient's power of digesting fermentable articles of food. The mucus flux from the stomach and boosels, which is a prominent feature of the compliant, is an active agent in premoting articles. A baby does well upon milk and barley-water (equal parts), and Melin's food, with a pinch of bicarbonate of soch to each bottle. He may also have the yolk of an egg twice a week, and, if over ten mouths old, weak red or chicken broth once in the day. After eighteen mouths the child may have mircol meat, or fish, milk, eggs, and stale bread, but polatoes and farmaceous publings are to be provided. Well boiled emiliflower or greens may be given if the patient will take these.

If the natural counting does not sufficiently unload the storach of macus, nature may be aided by the occasional administration of an ensua-Sulphate of ropper, as recommended by Troussess, is very useful for this purpose, and may be given to a shibl of one year old in does of half a grain every ten minutes until sickness is produced. Also, it is well to reters the boxels by an occasional dose of custor-oil. Looseness of the houels, such as is common in this complaint, in at once arrested in most cases

by a close of this useful remedy,

be changeable or cold.

Of special drugs for shortening the attack and relieving spaces, so may have been recommended that the more commenstion of them would occupy many lines; but of really serviceable drugs the number is much more limited. The treatment I have myself found to be most useful, and now invisibly adopt, in the following: —Directly may psculiarity in the cough or the occurrence of spaces indicates the nature of the complaint, I at our begin the administration of sulphate of sine and atropia. From a large experience of this combination I can speak positively as to its power of reducing spaces and shortening the disease. I begin with one-sixth of a grain of sulphate of sine and half a drop of the solution of atropine (P. B.)

The quantities recommended are multible to a child twelve mouths of age-

in water sweetened with glycorine, each morning and evening for two days, and then three times a day. After a week the quantity of zine is increased to one-fourth, and still later to one-third of a grain. The atropia, however, is given in frequently increasing quantities. Children, although they vary in their insusceptibility to this drug, can all take it in large doses; and in whooping-cough where there is spism to be overcome, the remedy is of little value unless given in doses anficiently large to produce some of the physiological effects of the sikaloid. Excluding the belladours rish, which is too uncertain in its oppositance to be trusted, dilutation of the pupil is the earliest symptom that the system is responding to the action of the medicine. This sign is separated by a wide internal from the next carliest symptom—dryness of the throat. To be of service, the sensedy should be pushed to as to produce some effect upon the pupil. With this object the doss should be increased every two days by a quarter of a drop of the atropine solution, watching the effect. In this way, with perfect articly, large quantities of the drug may be administered; and so employed, I think no doubt can be entertained as to the value of the treatment and its influence in shortening the course of the spasmodic stage and reducing the violence of the attacks. If the spream is exceptionally severe and seems to threaden partial asplaysia, it is wise to give in addition a nightly dose of bromide of polassoms or ammonism (gr. iij-iv.). There is one procustion which it is well to adopt during this stage. The perceyons are often most frequent and severe at night when the child is asleep. The slightest movement of air across the face, such as is produced by a person walking near the cot, will often excite an attack. These night sciences can usually to greatly reduced in number by an expedient suggested, I believe, originally by Dr. Marshall Hall. It consists in throwing a fine muslin curtain over the cut at night-time. The simplest plan is to have a couple of hoops arranged at the ends of the cot, like the "tilts" of a vagou, so se to support the curtain at a sufficient height. This arrangement, which corresponds to the mosquito curtain used in lot climates, does not interfere with a free supply of oxygen, while it effectually stops all wardering currents of air. So protected, a child will often sleep the night through without

At the end of the spasurodic stage and during the period of decline alians is very beneficial. This remedy, first recommended by Dr. Golding. Bird in 1845, has a marked influence in checking too copious secretion and bringing the disease to a favourable termination. Two or three grains of alirm may be substituted for the sulphate of zine in the atropia mixture, and given three times in the day. It is at this time, viz., the end of the spannedic stage and during the period of decline, that I have found the quinne treatment especially useful. I have little experience of the drug at the beginning of an attack. According to Bine, Jamen, and others, who, following the suggestion of Letzerick, direct their attacks against the organism which has been supposed to name whooping-cough, quining given at the beginning of the illness suppresses altogether the spannolic element, and converts the disease into a severe-but manageable beenchitis. They recommend the comparatively tasteless tamate of quinne, given twice a day in doses of a grain and a half for every year of the obild's life.

There is no doubt that to be efficient in pertussis quinae should be given in full doses. I have given three times a day two grains of the sulphate of quinine to children between twelve months and two years old towards the end of the spannedic stage, and have thought that the discuse was cut short by this means. Another combination which acts assestince at this period of the illness with wonderful promptitude is formed by adding two drops of the tracture of carefundes to five drops each of the tincture of cinchons and puregoric, and giving this dose three times a day. Tonics generally are useful during the stage of decline. The proparations of iron are especially valuable. Thirty drops each of the compound decortion of alone and tron wine make a good combination; inclide of iron is of service, and the citrate of iron with an alkali may be resorted to. It is a matter of great practical importance in all these cases to avoid the use of syraps in sweetening the maxture for the infant's pulate. Glycorine, being non-fermentable, is far safer; or we may use a few drops of chloric other for

this purpose.

Many other drugs are used in the treatment of whooping-rough. The eld treatment by dilute hydrocyanic seid and that by dilute nitric acid, each of which has had its sky, has now, probably, fallen into complete disuse. Onluss, however, in some form has not been completely expenseded by belladount. The preparations of morphia are still relied upon by some penetitioners, and the remedy is no doubt a useful one. It should be given in sufficient doses to produce slight drawsiness, and this effect should be maintained for several days. For a child of twelve mouths a drop of the morphia solution (P. B.) can be given every four hours. Then is no doubt that the space can be reduced by this means; but the trest. ment is, in my opinion, inferior to that by stropine, and necessitates very earcful suitching of the patient lest the narrotic effect of the remoty be corried further than is desired. Chloral may be also suppleyed to reduce spasm in desected gr. ij. every four or six hours. It is sometimes used in combination with bromoic of potassism, and the effect of both drugs apyears to be heightened by the association. Croton chloral is a romely greatly relied upon by some practitioners. The dose is one grain for a child of twelve months, given every four, six, or eight hours in water

smedered with glycerine.

Besides the above methods of treatment the topical action of drags is largely used in the management of whosping-cough. It is now nearly thirty years since Dr. Eben Watson advocated swabbing the largen with a solution of nitrate of sover, twenty grams to the ounce. The application was repeated every second day, and the spann is still to lines subsided at the end of the week. This heroto remedy is not now in vogue. Instead, milder applications appropriate into the threat are made use of. A two per cent solution of salleylic soid used regularly in this manner is said to diminish rapidly the number of peroxesus. Dr. R. J. Lee is a warm relyocate of carbolic neid inhalations, and claims for them that they induce a daily decrease in the violence of the cough, and promote the disappearance of the symptoms within a period varying from a formight to three weeks. Dr. Lee prefers long-continued inhalations of a diluted vapour, and recommends that the air of the room should be kept suturated with a weak solution of ourbelie acid. As this acid does not emporate when exposed to the air, special means have to be used for cutverting it into vapour. Dr. Lee's "steam draft intaker," which moistens the air as well as medicates it, is a useful and simple apparatus. A solution of one part of the need to thirty of water in to be med for reported tion, and by this means the child may pass a large part of his time in sir kept saturated with a dilute medicated vapour. If carbolic and be inbaled in the onlinary way from a month-piece, the solution should not be stronger than one part in eighty parts of under.

External applications have not been neglected in the treatment of whoeping-cough. Many putent remedies, such as Bocke's embrocation, which is composed of the oils of cloves and amber with double their quantity of obve-oil, belong to this class. Stimulating liminents are often useful if the enturely of the class is severe, and if applied along the sales of the neck, and to the spine as well as to the class, may help to reduce the spann. Mustard positives to the back are favourite remedies with some practitioners, and it is said that if applied along the whole length of the spine for six or eight minutes every night before the child is put to bed a speedy im-

provement is noticed in the symptoms. When complications arise in the course of whooping-cough, special measures must be adopted for their relief. If the ventiting of food become excessive, so as to interfere seriously with the child's patrition, it may be eften relieved by emeties of sulphate of copper (half a grain to the teaspecialisi given every day or on alternate days, so as to clear away tonacious murms from the stomark. Chloral is useful in these cases by its power of diminishing reflex action. Excessive constagg is usually found in cases where the laryngest speem is extreme, and the remedies which are useful in alleviating this symptom have also a beneficial action in checking too foreible contraction of the displeagm. Leoseums of the howels is nearly easily controlled by a slow of easter-oil. In this country diarrhon sellom becomes troublesome, but in warm climates during the hot season choloraic distributions may supervene. This must be treated according to the rules laid down for the management of that serious condition.

If beyngismes stridulus complicate the percayon, bromide of aumonium or potassium (gr. iij.) may be given with atropia two or three times a day; and the same treatment is useful if unweated nervous excitement, or signs of corebral disturbance, indicate the immiscence of a convulsive fit. If the spasm be prolonged and seem to threaten suffocation, slipping the child's lands into cold water will often relax the glottis at once.

Convulsions must be treated according to the special condition from which they appear to have arisen. In the more serious form of columptia attack, such as that induced by collapse of Imag, entarchal presumotia, or thrombosis of intercranial sinuses and veins, the treatment must be directed against the complication by which the nervous science has been excited. Convulsions set up by pure nervous agitation, or by partial asphyxin from sintence of laryagenal spasm, are usually to be controlled by the administration of chloral in the quantities already indicated. If the senures occur in a richesty child, and appear to be the consequence of digestive disturbance and accided, and appear to be the consequence of digestive disturbance and accided and aroundic mixture, will usually put in end to them at once.

If the pulmonary entarth become severe and threaten collapse of the ling, prompt steps must be taken to ward off this dangerous complication. Stommating applications should be applied to the chest and back; occusional emetics should be given to sid in the expelsion of mucus; and the child's strength must be supported by a suitable supply of alcoholic stimulant. In these cases alcohol should be given beinly. A young child in a weakly state from acute discuse will respond well to such treatment, and a few timely doses of brandy-and-agg, or other powerful stimulant, will quirkly give him removed strength to struggle against his discuse. It may be processary to give a tempoorful every hour, or even half hour, until the difficulty is overcome.

If catarrial preumonia supercene, the complication must be tented upon the principles had down in the chapter relating to that subject

When the disease is at an end, change of air to a dry, bracing spot or to the sea-wide is of importance. Beautobering the frequency of glandida calargements and the danger of tuberculosis, we should recommend such measures as are required for restoring impaired nutrition and replaces hot strength. Cod liver oil is very valuable, alcohol is of service, and no

is usually indicated.

The symptoms described as "mucous disease," which are often seen in children of three or four years of age or upwards after an attack of whooping-cough, are quickly removed by careful regulation of the dist. The child should be fed upon meat, eggs fish, poultry, and milk; and petatous farinaceous publings, fruit, cakes, sweets—all articles, in fact, capable of affording material for fermentation must be strictly forbidden. A miliaperient, such as the compound liquorice pender, should be given twice a week to ensure the expelsion of excess of mucus from the bornds; and iron with alkalies, or iron wine with compound decection of aloes (at 7 p, for a child of five years of age), should be given two or three times a day, two hours after meals.

Part 2.

GENERAL DISEASE NOT INFECTIOUS.

CHAPTER L

BUCKETS.

Or all the chronic diseases to which young children are liable, none surpasses in interest and importance the one now to be considered. The frequency with which rickets occurs, the variety of tissues it affects, the induence it exercises upon the course and termination of intercurrent maladies, and the distressing and often futal consequences which its presence involves

reader this dumus especially deserving of earchal study.

Although documilar in many respects from the class of so-called diathetic diseases, viz., those which arise as a consequence of a distinct constitutional prolisposition, rickets is yet a general affection, for it impairs the nutrition of the whole body. Under its influence growth and development are arrested, dentition is retarded, the bones soften and become deformed, the muscles and bigaments waste, and in fatal cases alterations are often noticed in the brain, liver, spleen, and lymphatic glands. The disease usually begans in inducy. It is rure under the age of six months, for it seems very doubtful if the cases of so-called congenital nickets are true examples of the disease. At the eighth month, however, it begins to he common, and from that age until the eighteenth month may be readily set up maler the influence of causes which interfere with digestion and impede the assimilation of food. It is less common for the disease to develop in children who have been in good health up to the age of eighteen months, but it may sever at any time between that age and the seconth year, or even in stall older subjects. Although beginning at a very early age, the disease often continues for several years, and may be seen existing in a marked degree in children three or four years old.

Counting — Rickets is the direct consequence of mal-nutrition in early life. Its causes must therefore be looked for in all the directs agencies which impair the matrition of the growing frame. The most important of these are, no doubt, faults of feeding and hygiens. Insufficient or unsuitable food stints the body of necessary nourishment, and an analogusts supply of fresh air rembers assimilation defective and weakens digestive power. These two causes are most commonly found united in the poorey quarters of large cities. An infant who lives amongst other children in

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one small room, where it breathes a tainted air and derives its only nourishment from the watery breast-mile of a weakly mother, with the addition, perhaps, of a little graef or supped broad to quant if when it exist, can only escape rickets; by becoming tubercular. By such means an extreme degree of the mulady will probably be produced. But similar agencies, although operating in a milder form, will produce rickets in any condition of life. It is not uncommon to meet with examples of the disease in wellto-do families where the child has been kept in-doors for fear of his catelying cold, and has been supplied with farmaceous compounds largedy beyond his powers of digestion. Over-feeding with starchy foods is a fruitful cause of rickets. The giving of farinareous matters in excess, or at a time when the glandular secretions are insufficient for its digestion, is the conmonest field committed in the hand-feeding of infants. Dr. Bodisana Batter, who talkahied one hundred and twenty consecutive cases of righets, found that in many of them the disease dated from the time when farinaceous food was first given. It is probable that in these cases the cocurrence of mal-matrition and subsequent rickets is due not so much to the excess of starch as to the absence of the more mutritious food for which the starch has been substituted. Richety children so fed are often fat, and do not, to the inexperienced eye, convey the impression of being under-nourished. Examination, however, discovers that they are by no mosta strong in proportion to their size. Although atout they are weak, often excessively leader; and it is evident that the planapasse of the child is also to disproportionals development of the subcutaneous fat. This tionae has been enormously over-neurished while the rest of the holy lim been simbol and started.

The time of wearing is often a starting-point for rickets, for the breastmilk is usually replaced by some preparation of starch. So also longcontinued exciting may induce the disease, for the breast-milk after a time croses to satisfy the infant's wants, and too little additional neuridment is supplied. Therefore whether the food given be insufficient in amount or usligabilitie in form the effect in the same: the child is started

and rickets becomes developed.

In cases where the child lives in a good bracing air the effects of an unsuffield distary are less parafully credent. In dry country places, where the infant spends much of his time out of decre, rickets is a more irresulted in health. Want of similable, want of eleminous, and a continuition of cold and things are other determining causes which are not unfount their influence in the production of rickets. All these causes must no dealth at with special energy in the case of infants who are industry weakly, or whose strength has been already reduced by some exhausting disease. There are, therefore, many conditions which predispose to the complete. Feetleness of constitution on the part of the parents will, no dealth, have an influence in this respect, for tearly perents are not likely to beget constitutionally healthy children. Moreover, a weakly mather as usually unable to make but help y and hand-feeling, unless conducted with extreme one and discretion, is often unsatisfactory. A very large proportion of nearly infinite are bottle-feel.

Horoditary tendency is considered by some observers to be an element in the etiology of the disease. In the case of so common an affection it must no doubt often happen that the father or mether of the putiest has been previously affected in a similar way; but that a power who had been rickety in childhood should give kirth to a seably infant, and that this isfant, brought up in violation of all the rules of health, should develope vickets, is surely but alender evidence in favour of the hereditary transmission of the disease. Supporters of this theory usually point to the cases of so-called "congenital rickets" as instances of the inherited form of the disease; but, as is bereafter explained, there are reasons for exchal-

ing these cases from the class of true richets.

The relation which exists between rickets and congenital syphilis has within the last lew years been brought into great prominence. M. Parrot has inboured to show that rickets is always the consequence of an horsilitacy syphilitic taint. The arguments of this observer in favour of his view are derived chiefly from morbid austomy. He points in particular to the anatomical changes observable in the epiphysial ends of the long bones in the two discuses as evidence of the specific inture of rickets. But the latter is not only a discuss of the lones; and although the epiphyses in the two cases may present a certain similarity of lesion, there are other alterations of structure in rickets which are different from those of applicits. Moreover, the general symptoms, especially the populiar tendency to functional peryour disorders, have no counterpart in the specific disease. Again, rickets is constantly met with in cases where the most careful inquiry and most minute examination full to eletect any history of venereal trint in the pureats or sign of it in their offspring. The disease is common in localities where congenital syphilis is rare, and rare in places where the latter is common. It is not with in animals as well as the human subject, and is produced in them by faulty bygiene and bad feeding as it is in the child. But it is needless to multiply arguments against the untenable hypothesis advanced by this distinguished pathologist.

Still, although it cannot be allowed that rickets is caused by syphilis, syphilitic infants may become rickety; and it is probable that a parent weakened by a former syphilis may, without transmitting the trint to his offspring, begat a child of feeble constitution in whom rickets can be easily induced. But in both these cases inpulicious feeding and insunitary con-

ditions must come into operation before the discuss can occur.

quickly bring his life to a closs.

A pronounced taker-size disposition appears to have a protective power against rickets, for although weakly, parkissed parents may give birth to feeble infants who readily fall virtims to rickets, it is run to find the latter discuse in a family where other members have died of taker-ular meningitis or other form of pure tuber-ular-unless, indeed, the tuber-ular machief has occurred secondarily to rickets. The reason of this immunity seems to be that the causes which are capable of setting up rickets will induce taker-ulosis in a child predisposed to this form of illness and very

How it is that these causes give rise to rickets is still undecided. It has been shown by the experiments of Friedleben that a diet deficient in phesphoric seid and the lime suits is not espalde, as was at one time supposed, of inducing rickets; indeed, it seems probable that the secures of the process is not a mere dedicionally of lime in the bones, but an irritation of the bone-making tissue. It is asserted by Heitmann that bette end excertises an irritating influence upon the osteoplastic tissue, and that it is this influence, combined with a dedicional in line suits, which induces the discuss. There is little doubt that lattic soid is abundantly generated in the deringed digestive organs of rickety children, for this soid has been discuss in their units. If Hestman's theory be convect, the noil excites irritation in the outcoplastic trains, and it the same time dissolves and helps to climinate the calcarcons matter deposited in the bones. If, is ad-

dition, the supply of time salts be actually reduced, rickets is set up with

still greater certainty.

Morbid Anarous. - In looking at a case of well-marked rickets the epois at once arrested by the enlargement of the epiphyseal ends of the large hones and the deformation of the skeleton which result from softening of the reseous framework. In rickets the bones are affected in three wars. Growth, although not completely arrested, is retarded and replend irregular; ossification of parts still remaining cartilaginous is interfered with and have already confied is softened. When a longitudinal section is made of one of the long honce the whole structure appears deeply reddenal from intense congestion. The epiphysis is very large, and the increase in size is due risedy to an enormous development of the cartilage. which is preparing for the reception of the calcareous sults. The layer of curtilizes into which the new bone is advancing is called the same of onlyerrica. That next in order, in which the corporation elements arrange themselves in vertical columns in preparation for the approach of the earthy deposit, is called the coar of problemator. These two comes are greatly thickened and are not separated, as would be the case in the lone of a healthy child, by a well-defined straight line of demurcation. In the rickety opinloyes the new bony tissue, instead of advancing by regular steps into the zone of esleifestion, no one point being in advance of another, shoets up tregularly, so that lines or little adets of calcification sre seen far up in the proliferating zone, while on the other hand specks and streaks of uncalcified earliage are left for below the line of earlier deposit completely unrounded by hone. Moreover, medulary spaces are found in unusual places, and appear even in the proliferating zons of cartilage for in advance of the margin of ossification. The cartilage cells become the seal of calcureous impregnation," and one in many cases converted into hone respendes. Small isolated moses of lime can also often be seen andtered through the matrix—entury in many cases to give a dotted appearunce to a section of the cartilage.

Changes similar to those described in the apiplyxes take place at the surface of the shaft of the long hones and in the flat bones. The periosteam becomes encessively thick and very vascular, and is connected as firmly with the lone is north that it cannot be detached without fragments of the latter being stripped away with it. He connective-tissue corpuscies undergo rapid proliferation and become transfermed directly into box corposedes. The calcifying process is irregular here as it is in the epoplayers so that layers of firm both tissue are interspersed with others somposed of a filrous matrix containing connective tissue or beac onprovies and medulary spaces. In the flat bones, especially those of the skull, the irregularity with which calcureous matter is deposited is well seen. The new perous been occupies chiefly the surface and edges. In the cranial hones a special change is often found. In curtain spots the home becomes excessively then and transparent (cranio-takes). This condition is due to deficient deposit of time salts in the external layers and absorption of the soft tissue in places, here and there, from the pressure of

the brain.

Boxes in which ossification is thus delayed and perverted are usually soft. The softening is the consequence of the smaller proportion of surfax

[&]quot;It has been doubted whether this charge occurs in healthy surfaction, for in the normal process the mightanian of the intercellular matrix which surrequest the carllary relia concents the latter from over. In rickety-bone the catestying granules are deposited first in the cells, so that the charges is them can be distinctly seen.

salts they contain and the larger percentage of organiz matter. But the deficiency of lime suits is due not to their removal after deposition, but to the sluggishness with which they are deposited. The corporcular elements of the periosterm are proliferated in large quantities, and the new matter is but slowly and imperfectly converted into hone. The circumference of the shaft, therefore, consists in great measure of spongy lausilla which are only partially ossified. All this time in the interior of the bone the normal enlargement of the medallary canal by absorption still continues, so that as long as the rickety process is active the proportion of properly constructed ossesse matter containing its due percentage of earthy salts is continually diminishing. Such a lone must necessarily be yelling and subject to ready distortion. This, however, is not the only cause of the bone deformities. According to Strelzoff, the osseons trabecules have an abnormal arrangement in rickety bone. They are disposed radially instead of concentrically. He maintains that this progularity further diminishes their power of resistance to external pressure and is an additional source of weakness.

At the height of the disease the bones, basides being softer, are specifically lighter than natural, and contain an undue proportion of fatty matter. Moreover, the cartilage contains a high percentage of water. The bone on analysis has been shown to consist of 33 to 53 per cost, of earthy salts, instead of 63 to 65 as in health, and its animal matter is said.

to yield no golatine on boiling.

When the disease becomes arrested, confication in the soft, newly formed tissue takes place rapidly. The loose spongy structure closes up and becomes thick and hard, and the whole boxe is heavy and dense.

The morbid changes in the assessme system form, no doubt, the most characteristic feature of the rickety state i hat rickets is not merely a disease of the hones. In addition, various puthological changes are discovered in the bodies of children who have died while suffering from this affection. In some the liver, spleen, and hymphotic glands are found discussed, the muscular structure is altered in bad cases, the brain may be affected, and

the prine almost invariably exhibits pathelogical characters.

The alterations in the liver, spleen, and lymphatic glands are by no means present in every case, or even in every marked case of the disease. The affected organe are enlarged, tough, and solid to the touch, and heavy out of proportion to their size. The change is usually most marked in the spleen. Dr. Dirkinson considers it to be due to no "new growth or infiltrated deposit," but to a hyperplasia of the normal tissue of the organ, and chiefly of the intersticial compective tissue. The fibrous and epithelial elements are hypertrophied, and at the same time their earthy salts are deficient in quantity. In the liver the fibroid sheath within the smaller portal canals is twice its natural size, and in the glandular structure the yellowish aring are bounded by a thin pinkish or grayish line. In the spless the interstiful connective tissue may become so hypertrophied that the trabecule are as thick as the spaces they enclose. In the amshes the conjunctes are seen by the microscope to be erowded together. The organ is hard and resistant, so that it can be out with the utmost case into thin sections. Ilssurface is deep red or purple in colour, with annoth white apots from enlarged Malpighian corposeles. Its section is deep red mottled with pale buff colour. But little blood can be aquested from the cut surface. The Ayuphatic afinds are sometimes also calarged and hard. They are white and opeque on section from accumulation of their cellular contents.

Enlargement of the liver in rickets is not always the consequence of the

pathological condition described. If a nockety child be much wasted from intestinal extern or other dignestive trouble, the liver may be swellen from fatty infiltration. If he have been subject to repeated polanous y externa with great interference with the respiratory function the organ may be tellurged from chronic congestion. So also turgoscence of the spleen may be found unaccompanied by any appreciable lesion of the liver or lymphatic glands. In some cases the increase in size of the organ appears to be due, as in the case of the liver, to a chronic congestine process which concess large development of hyaline fibroid material. In others the spleen seems to be the seat materly of simple hyperplasin and presents the ordinary characters of hypertrophy, such as are seen in some cases of inherited synthics and in the ague eachexis. This form of enlargement is referred to obscuric to see page 238).

The numerical lawe been noticed by Sir William Jenner to be small pale, flabby, and soft. Their fibres under the nicroscope are softer and paler than natural, with the strice very indefinelly marked. The brain is constitutes small and shrunken, so that fluid is thrown out to fill up the space left variet in the shull early. It is also sometimes atlarged, so fauch so, in some cases, as to runse distention of the cranium. Dr. Hilton Fugge has referred to a case which was taken to be our of advanced hydrocyphilm until an examination of the body after death aboved that the brain filled up the crunial cavity completely. In such cases the organ, although enlarged, has a benitty appearance and is of instural consistence. The hypertrophy is said to be in the nerwoodia without any increase in the nerve-

elements.

The urine contains an increased proportion of phosphate of lime, and lactic scid has been found in it by some observers. The secretion is pule in colour and often deposits crystals of conlate of lime. Often also, as is so commonly the case in children in whom acid is largely generated from fermentation of food, crystals of unc soid and even considerable quantities

of red sand may be passed from the kidneys.

In addition to the above pathological conditions, which may be considered to arise directly from the general disease, there are others which may be looked upon as accidental since they are induced mechanically by the diformities of the thorax resulting from the softening of the ribs. In all cases of distortion of the framework of the chest two pulmenary lesions are invariably present. These are emphysema and collapse. The emplipserms is scated at the autorior borders of the lungs, and extends backwards for about three-quarters of an inch from their free margins. Immediately outside this line of dilated lung tissue is a line of collapse which separates it from the healthy pulmonery substance beyond. These lesions occur together and, although not dependent one upon another, are produced by the more mechanical means. During the act of inspiration the softened ribs sink in, and the pressure of the enlarged ends of the ribs compresses the lung from with which they are in contact so as to prevent its expurnon by the air which inflates the remainder of the lung. While, however, the dismeter of the chest is narrowed laterally, its antero-posterior dismeter is increased by the protrusies of the sternom. Consequently the alreed of the interior boolers, immediately behind the breast-bone, are distended by the air which is forced into this part to fill up the resulting space.

Pulmonary collapse is not always limited to the parts of the lung corresponding to the ends of the ribs. There is often to be seen, in addition, a certain amount of analogues at the bases of the lungs behind. Collapse at this part of the long is due to pulmonary enterth and plugging of an air-tube with mucus. Its mechanism is described elsewhere (see p. 465).

The entarged epiphyses of the ribs, besides their effect upon the long tissue, are also the cause of the patches of circumscribed opacity seen on the viscoral surface of the pericardium and on the spleas. That on the pericardium is situated on the left ventricle a little above the spex of the beart. At this point the heart at each heat comes into coulact with the nodule of the fifth rib. That on the splean is produced in the same way by attrition, the organ as it rises and falls in respiration being rubbed against a similar costal projection. In each case the white patch is

limited to the floors layer. From a consideration of the morbid changes discovered in the bodies of rickety eliblium, it is evident that the discuse is a very special one, involting very wate-spread lesions of structure. Attention has lately been directed to the whole subject of bone charges in the young subject, and it is asserted that many cases in which hope softening has been pronounced are not real examples of richets, but might rather, to fall under the heading of osteo-malaria; the osseous changes resembling closely those observable in cases of osteo-malacia in the adult. The question is of importance, for the nathology of the two conditions is ementially dissimilar. In osteomalaria softening is the consequence of a resumal of the earthy constituents from perfectly formed bone. In rickets ossification is incomplete, and much new material is thrown out which undergoes very inserfect calcification. The question can only be decided by a careful study of the morbol appearances. In the case of a rickety little girl agod eighteen months, described by Dr. Bohn of Frankfort, there was marked distortion. and softening of many of the long house, with other signs usually considered characteristic of nickets. The disease, however, was judged to be osteo-malacia on the ground that aithough softening was a marked feature in the bones, the epiphyseid ends were only moderately swellen, and in the bones of the lower extremities were hardly swollen at all. Moreover, the whole skeleton was excessively thin and the lower extremities were quite straight. There was however, a considerable formation of soft purinoteal deposit; and a rickety element in the case was admitted. It is possible that true coteo-malacin may be grafted on a case of rickets, as is supposed by Dr. Relm to have happened in the instance referred to, but further observations are to be desired before any definite conclusion in the malter can be arrived at.

Before closing the subject of the pathology of rickets a few words may be said with regard to the cases of so-called "congenital rickets." This term is applied to a condition in which the limbs of a new-born child are found to present peculiar characters. The shafts of the bones are short and thickened, and may be found bent or even broken. At the same time the epiphyses are swellen, soft, and quite cartilaginous. The condition, however, differs materially from true rickets, and has been compared by Eberth to that found in cretimous children. In all recorded cases where the post-worker appearances have been noted the shafts of the bones have been found much confied and remarkably thick and structed. This pseuliarity gives, of course, a surious shortness to the kimbs. The disphysis, instead of being imperfectly confied as in rickets, with great parently of the moduliary parts of the bone and thickness of the perios-

In a case described by the Parlow the upper limbs emched only to the maldibcus, and the lower extremities measured no more than five inches in length.

teum, are excessively hard and compact. Fibrous tissue derived from the inferior layers of the periosteurs intrudes between the epoplysis and the shaft. The eniphyses, also, are enlarged generally and not only at the line of calcification, as in rickets; and their microscopical characters present sensible differences. In a case recorded by Uriel the curtilege cells in the teiphyses were found lying confinedly together. As they approached the displays they were seen to become fatter, especially in the peripheral portions, and finally passed into the layer of connective those which separated the greater part of the spiphysis from the shaft of the bone. The resemblance between these cases and cretinism is displayed not only by the stunting and firm coeffication of the displayers. There is the same tendency to only union by oscilication of the Iusi-occipital and postsphenoidal bonos. Some specimens of "congenital rickets" preserved in the Museum of the Boxal College of Surgeons exhibit this peculiarity, and in others, where the soft parts remain intact, many of the facial characteristies of the cretin are also to be observed.

Symptoms - As might be expected in a disease which strives as a direct consequence of faulty nutrition, the symptoms proper to rackets are usually preceded by others indicating a general interference with the natritive processes. Digestive derargements are common, but these compensively stidem consist in attacks of severe or repeated remating or diarrhosa. In most cases the derangement is limited to a lessening of digestive power, so that the motions, without being actually loose, are more frequent than natural. They are large, posty-looking, and offensive from the quantity of farinaceous and curdy matters which are passing undiposted out of the body. At this time the child is often irritable and fretfal. His belly any be swollen from flatulent distention, and he frequently ones with page in the abdomen. For this reason he may be often found askep in his cut resting on his chest, or supported on his kness and ellows with his heal buried in the pillow. The urine is often very and and causes uncariness in nacturition. If the shift perspires copionsly the reral secretion may contain considerable quantities of unc acid smal.

Unless by judicious treatment and diet the alimentary could be restored to a healthy state the child, although often still plump to the eye, becomes pale and flabby. Then, after an interval which varies in direction according to the natural strength of the patient and the more or less wholesomeness of his surroundings, the early symptoms are noticed. The onset of the disease is announced by three special symptoms. The child begins to sweat about the head and neck; he throws off his poverings at night and her taked in his cot; and begins shortly afterwards to exhibit unessiness if much danced about in his nurse's arms or handled without the utmost

gentleness.

The sweating is produce and occurs principally during steep. At night beads of moisture may be seen standing on his brown and the sweat trickles off his bond on to the pillow, which is often saturated by the secretion. If the child fall askeep in the day-time, or even if he exert himself much while swake, the same phenomenon may be noticed. The irritation of this perspiration often gives rise to a crop of militaria about the neck, behind the cars, and on the forebead. The superficial verns of the temples are full, the jugular wins are unusually visible, and the caretid arteries may be felt to pulsate strongly.

The desire of the child to be each at night comes on almost at the entire time with the preceding, and may be observed in the coldest weather. It is indeed, a frequent cause of extern in these patients, and I have seen many cases in which continued looseness of the bowels was apparently maintained by repeated chills so contracted. For the same reason a fre-

quent cough from pulmonary estarrh is a common symptom.

General tenderness usually begins to be noticed at a cortain interval after the two other symptoms which have been mentioned. It is shown by unusual scantineness to even slight pressure, and appears to be sented in the muscles as well as the bones. The child cross if lifted up at all abruptly or subjected to any joit or jar, and prefers to he quietly in his set or on the lap of his nurse. This symptom soldom occurs until the occurs charges are well marked. It is accompanied by uncastress or pain about the head, which is indicated by a monotonous novement of the head from side to side upon the pillow. The hair covering the occupat is often were very by this constant movement, and the herrores of the bock of the scalp from this cause is a very characteristic symptom. Tenderness is not always noticed. It is usually confined to cases where the discuss is severe. In the mild cases, which are shown morely by a slight enlargement of the wrists and analys, without any apparent softening of the boxes, the symptom is usually abount.

The hone changes consist in an enlargement of the epiphysical ends of the long bones, in a thickening of the flat bones, and in a general softening of all. The enlargement of the ends of the bones occupies the point of junction of the shift with the epiphysis. Both extremities of the hone may suffer, but the change is naturally most obvious in the part which is nearest to the surface. The ribs at their sternal ends are usually the first to be affected; then the hones of the wrists. As a rule, the corphysical swelling as more marked in the bones of the upper extremities than it is in these of the lower. The thickening of the flat bones is well seen in the bones of the emnium, and the softening of all the longs in one of the causes of the deformities of the trunk and limbs which are so consuce in early life. must not, however, be supposed that every case of rickets such in softening and distortion. All degrees of severity of the disease may be mot with, and in mild cases softening and the consequent deferenties of lane are entirely absent. Even in more severe cases we must not expect in every instance to find all the symptoms to be enumerated. In one child the epiphysed swellings attract most attention; in another the softening of the hones. In some the clear is excessively distorted and the hones of the limbs are comparatively straight. In others the limbs are greatly twisted while the thorax is but little altered from the normal slape. These differences are said by Baginsky to be determined by the part of the skeleton in which growth happens to be most active at the time of the attack.

In a pronounced case of rickets the effect of the bone lesions is very

striking and poculing

The shall is large with a long autero-posterior diameter, and often, on account of the comparatively small are of the face, looks larger than it really is. The foreignal is square from suggestation of the bosses of the frontal bones, and is sometimes very prominent from the development in the bone of cellular cavities. The featurelle is large and remains open long after the and of the account year. Sometimes, if the size of the brain is increased, or there is excess of fluid in the skull cavity, the sutures in connection with the fontanelle can be felt to be more or less distinctly gaping. On account of the thickening of the edges of the flat bones the margins of the autures and fontanelle are elevated, so that the latter field depressed and the autures are inheated by furrors. The posterior fon-

turelle has asmally disappeared before the beginning of the illness, but in extreme cases, where the discuss began early and the symptoms are po-

nonneal, it may be felt to be still unclosed.

In every case of riskets the condition known as "crumio-tables" and described by Elabour should be nurshed for. It is best detected by pressing gently with the tips of the fingers on the posterior surface of the level. If crumio-tables he present, spots will be first where the bare is thin soft, and elastic, as if at this point it had been converted into nightly stretched purchasent. The spots are schiom larger than the diameter of a pool-sized pen, and are smally confined to the compital bone. They are consult by absorption of the imperfectly coeffied bone from its compression between the pillers and the brain as the child lies in his cot. They may be not with as soon as the third mouth of life, and are said to be the cardiest sign of the disease.

A rackety child's loar is usually thin, and is often kept moist by the commun perspirations to which the head is subject whenever the parient falls micep. In most nickety children a systolic mammer of variable integarty can be heard with the elethoscope applied over the fortunelle. According to Senstor, the symptom merely shows that an resided membrane is better fitted than the cranial bones to transfelt to the car sounds grausated in the cerebral vessels. There is no doubt that it is rarely heard in children in whom the fontunelle has closed. The mornior is sometimes euriously loud. Not long ago, a pullid, fishby little girl, between two and three years old, the subject of rickets, was brought to me from the comtry on account of a strange noise which was beard at times to proceed from her book. The child had cut all her teeth, but was very weak on her logs. She was subject to attacks of stridulous larengitis. The featurelle was not quite closed. Her heart and langs were healthy. It was said that in this child a noise like "the purring of a kitten," not continuous, but distinctly intermittent, "like a pulsation," could be heard at times. If was feedest at the right side of the bend. It was not especially lend after exertion, and was only occasionally antible. It was board best muscliately the child avoke in the norming, and was than distinctly perceptible several yards from her cot. During the shill's visit to are no rerebular other nummer could be heard with the stellowrops. Still, I had no reason to doubt the good faith of the relatives. The mother, who gave me the noment, told her tale in a straightforward manner, with the air of one wha was enger to receive an explanation of a mystery which had unusled for and made har anxious.

The claim course of the smallness of the face is the imperfect development of the jaws. Phoseburan has drawn attention to the asgularity, and flatness anteriorly, of the lower jaw. It has lost its normal curve. The increase are quite in a straight line; then at the admition of the exe-teeth the jaw forms a sharp angle and bends absorptly backwords. This is one is imperfect growth of the middle portion of the jaw. Bagmaky describes in addition on occasional want of symmetry between the two haloes of the bone, which gives the appearance of one side being higher than the other. The effect of this delayed development of the jaw upon dentition is very important. Eickely children are late in teething. At whatever age before the completion of dentition the disease may begin directly the creatal or facial bones become affected there is complete arrest in dental development. Thus, if the disease occurs before any teeth have been ext, that appearance may be indefinitely delayed. If several teeth have already powered the gain the process stops there, and months may clame before

others are seen. When, however, the teath do come they are nearly cut without much trouble; but they are in most cases of laid quality from imperfect development of the dental enumel, and quickly blacken and decay.

The chest is deformed in a very characteristic meaner on account of the inability of the seftened ribs to resist the pressure of the atmosphere. Under normal conditions, when the ribs rise and the chest expands in the art of inspiration, the solid framework of the thorax is also to withstand the pressure of the expired mr, and the chest easily enlarges to allow of inflation of the langs. Air rushes through the wind-pipe to dilate the pulmonary tissue in proportion as the clost walls expand. In the rickety classt, on the contrary, the rite are not firm but yielding. Consequently the framework of the thorax is not right enough to resist the pressure of the air from without, and when the effort is made to expand the chost the softened riles are forced in at the sides—the parts where they are least supported. This sinking in of the ribs thrown the stersors forwards. We therefore find the chest greered laterally and the breast-brusprominent and sharp. The groove is broad and shallow, and reaches from the second or third rib to the hypochondrium. The bottom of the depression is formed by the riles outside their junction with the cartalogue. Therefore along the inner side of the groove the smollen ends of the ribs cars be seen, looking like a row of large beads under the skin. The greaveis deepest in children who have suffered much from pulmonary catarria. In such subjects the impediment to the entrance of nir, already existing, is increased by the narrowing in the calibre of the smaller tabes induced by the desargement; and the softened ribs receive still less support from the lung frome beneath them. In a chest so deformed such inspiration increases the depth of the lateral groove, and at the same time produces a deep furrow which passes horizontally across the chest at the level of the spigastrium. This furrowing of the surface has been shown by Sir Wilham Jenner to be due not to the traction of the displaners, as was taught. by Bokitansky, but like the lateral grooves of the chest to atmospheric pressure. The liver, stomach, and spleen support the parietes under which they lie, and prevent the wall at these points from falling in.

The space is often bent. In an indext the cervical curve is increased so that the bend is supported with difficulty and falls backwards upon the shoulders, producing a very characteristic attitude. Also, the weight of the bend and shoulders, as the child sits bending forwards, causes a projection backwards of the dornal and humber spines, which is constitutes so sharp as to give the uppearance of vertebral caries. The deformity, however, subsides completely when the child is taken up under the arms and the spine is drawn upon by the weight of the limbs and private. If the patient is able to walk, there is an increase in the humbar and dornal curves. The curvature may be lateral. If the child is carried habitually on his nurse's left arm, the trusk sways over to the right; if on the right arm, the body leans to the left. In all these cases the deformity is due to weak-

ness of the ligaments and muscles.

The bones forming the pelois may be also deformed, and sometimes, like the chest, are greatly discorted. The shape assumed by this framework is very various, for as it is due in all cases to compression of the yielding bones, it will be determined partly by the age at which the dissace begins, and the degree to which confication has advanced. It is therefore different, according to the small stritude of the child and to the circumstance of his being able or not to walk about. Its most redinary shape is an irregular triangle. Distortion of the pelvis is of great importhere in its influence upon shild-bearing in the adult female; but even in early life it may have grave consequences. The operation of lithoitsmy in the young subject has been attended with serious difficulties; and even

been followed by fainl results, on account of this deformity.

In the bones of the fimbs the articular ends are nodular from ealargement, but the shalts themselves have often an unnatural slape. In the arm the asserves is often curved at the insertion of the deltoid muscle by the wright of the forearm and hand when the arm is raised. The regive and also are curred outwards and twisted, for a rickety child often rests his hands on the bod or floor to assist his feeble spine in supporting the weight of his trunk. In the feature the head of the bone may be best at an angle with the shuft. The body of the bone is curved forwards at the rhild cannot walk; for as he sots on his mother's lap the weight of the leg drags upon the lower part of the thigh. If he can walk, the curve is an exaggeration of the natural curve-forwards and outwards. The total is curved outwards if the child is unable to walk, so that when the patient is held spright the knees are widely apart. The deformity is due in this case to the position connectly assumed by the infinit, who is addicted to sitting cross-legged on his bed, so as to make pressure upon the outside of his ankle. In challen who can walk an aloupt curve, laving its conventy forwards and outwards, is seen in the lower third of the bone. The lower limbs are not distorted in the infant so frequently as the arms. If the child carnot stand, these extrenoties, although small and feeble, are often perfectly straight. In cases where the deformity of the long hones is extrems, the shaft is not only bent but broken, for a partial ("green-suck ") fracture is generally present. The same thing is often seen in the claricies which have their normal curves very greatly evaggerated.

Besides the sediening and deformity of the bones there is another consequence of the disease which is of great importance. This is the arrest of greath and development of hone which can be noticed in all cases of severe rickets. Bickety children are short for their age, and remain and sized after the disease has passed away. The arrest of growth is next marked in the bones of the jaws, of the lower limbs, and of the polyis. As it affects the polyis, this feature is of especial importance on account of its influence upon parturation in after life; for if the capacity of the polyis framework be not only diminished by distortion, but also relatively small from arrest of development and growth, the difficulties in the way of sec-

cessful delivery may be inseperable.

The weakness in the lower limbs, which is a marked feature in rickly, is due not alone to footdeness of the numerica combined with the general debility of the child. There is also great weakness and looseness of the ligaments of the joints. This weakness is more pronounced in cases where the disease begins after the end of the second year. In such cases of late rickets addening and deformity of bone are less common features of the disease, while the looseness of the joints from marked relaxation of the ligaments may reach a very high degree. In such cases, too, the disease laving begun after the completion of destinion, the teeth are often white and sound.

During the progress of the bone-changes which have been described the general symptoms continue and become more severe. The head prospirations are profine; the child can hardly be kept covered in his bodtest whether it be night or day pushes off the bod-chothes and exposes his racked limbs to the air. In bod cases his tenderness and dislike to move ment are extreme. So long as he is left alone he is patient and still bot when approached or noticed he at once becomes fretful and apprehensive of disturbance. He will set for hours together, beedless of his toys, crosched up in his rot; his legs doubled beneath him, his spine bowed, and his head thrown back; supporting his body upon his hands placed before him on the hed. On account of the softened ribs and his consequent difficulty in expanding the image, has breathing is rapid, and his consequent form of the softened ribs and his consequent his appetite varies. Sometimes it is poor, but more often it is good and may be ravenous. If attention has not been paid to his diet, and the child continues to pass large quantities of pale, purity-like matter, he will usually availous almost anything that is given to him. Sickness is not common, and severe distributes is only occasionally met with; but moderate attacks of purging are frequently seen, the stools being green, aliny, and offensive.

The belly in rickety children is always large, even in cases where no discase of the liver or spheen can be detected. The swelling is principally due to feebleress of the measurements, allowing of accumulation of flatus, and to the shallowness of the pelvis, which flatows all the abdomand viscern above the level of the pelvic brim. If the spheen is very large it may cause a special swelling on the left side of the belly, sometimes reaching below the ambilians. It may be remarked here that in cases where the liver and spheen can be felt below the level of the ribs we must not at once conclude that their size is abnormed. The organs may be merely pushed down by the depression of the displangen and distincted capacity of the thorax. Therefore, after ascertaining the position of the lower edge the upper limit of the organs abound he estimated by careful perussion. In addition to enlargement of the liver and spheen the superficial lymphatic glands are semotimes swellen, and can be distinctly felt larger than natural in the

nollie and grains.

Rickets is not a come of pyrexia. If the temperature rise above the normal level a complication may be at core suspected. If fover occur during the stage of improvement it often sunsunces the return of dentition, and shows that a tooth is pressing through the gum. The degree of wasting varies. If the disease he mild the rhild, although pale, is often exceptionally plamp from over-nouralment of the subcutaneous fat; but unless recovery take place shortly the limbs quickly begin to feel soft, and soon the child out be seen to be evidently wasting. The complexion is always pale, the lower epstid is frequently discoloured, and the borders of the mouth have a blaish tint. If great enlargement of spicea, be presest the tint of the fice becomes persitarly bloodless and the mucous membranes are very pule. Birbety children are backward in every way, both in mind and body. Their intellect seems to grow as slowly as their bones. On account of their insbility to join in ordinary childish games they are much in the society of older persons, and therefore acquire an unchildish way of expressing thouselves; but they talk very late and are dall at picking up new words and planess.

The progress of the disease is slow, and unless the insuritary conditions which have led to it be removed, it goes on from had to worse. These children often die from some unturnhal complication. A bull disertion is very dangerous on account of their general weakness, and a comparatively mild pulmonary enturnh may prove futal through the softening of the ribs. Death rurely takes place from the intensity of the general discase. When improvement begins under judicious treatment the general tenderness is namely the first symptom to subside. The child is less fratful when noticed and takes more interest in what passes ground his bed. At the same time the self-ening of the bones diminishes, and as the risk regain their firstness the nurked improvement in breathing which reads from the greater rigidity of the chest-wall cannot escape notice. Teething also begins again; the westing crosses; the belly is less distended; the avents dimensial and all the symptoms undergo great improvement. These children often become very stardly and strong, but usually remain shortly stature even when their full growth has been attained.

A form of the disease has been described which has been called "sensrickets." In this variety the articular calls of the long bears undergo rapid enlargement and become tender on pressure. Secondary eclinical swellings are also seen about the limbs. The temperature is high, it seems probable, from the investigations of Drs. Chendle and Barlow, that these cases are instances of scurvy graffed on to rickets. They are referred

to more fully in the chapter treating of the former discuso,

Complications. - It is not often that a case of rickets remains turounds cated by some intercurrent complaint. The subject of a pronounced farm of rickets has but little resisting power, and is readily affected by my kind of injurious inflaence. But he as in addition poculiarly liable to certain forms of derappensal on account of the special tendercies of this place of and-moretime. The sensitiveness to chills munifested by a rickety child has been already remarked upon. This processes to astere may be the consequence of the profuse and ready artica of the sweat-glands, and # is no doubt succompad by the shirl's practice, when his perspirations begin of throwing off the coverings of his bed. The various forms of catarrh are therefore especially liable to occur, and pulmourry and inhedical estuate are the most frequent of these demagements. Few rickety children are without a cough, and this symptom, on account of the unnatural flexibility of flicir chest-walls, must be always regarded with anxiety. The danger of even a mild pulmonry caterioù these patients, and the readiness with which the descriptment gives rise to collapse of the long is referred to elsewhere (see p. 467). To this cause a large properties of deaths is due. Again, more or less intestiral enturch is a common derangement in this disease, and after any musual exposure the looseness of the bowls may pass into a soone attack of purging. Distribution on account of the great general conkisses, is a source of extreme danger, and during the changeable research of the year many children are carried off by this conplaint.

Another peculiarity of the rickety state is the cursons impressibility of the nervous system which manifests itself by the ready occurrence of various forms of squam. Bytes convulsions are common, and furgagonus stricters in practically confined to the subjects of violeta. Cutarrived the largery is also highly to be accompanied by squam, and therefore entered crosp (haryogitis stratelesse), as is classifiery stated, is a frequent case of saniety. These subjects need not be further referred to in this place as they all receive consideration in special chapters.

One other not uncommon complication is shrow kyleocophulus. On account of the small was of the benin in many cases of rickets, field is effected into the cramid except to fill up the resulting space. The mount of serosity is, however, soldern large and rarely comes to be a source of

danger.

An occurrent complication, although not a common one, is were intercutous. The discuss is probably in all cases the result of an acquired bendency due to the presence in the healy of a softening cheesy deposit. It certainly is proportionately less frequent in rickety subjects than in children free from this disorder of matrition; but it is necessary to be aware that

rickets does not exclude tuberculosis.

Dispersic—In a mild case of rickets the prominent features are the swelling of the epiphyseal ends of the long bosos, the tardy couption of the teeth, and the backwardness in learning to walk. If we notice the wrists to be large in a young child, we should at once count the number of his teeth and ask if he is able to stand alone. If a child ten months old shows no sign of a tooth, if his wrists are large, and if when held upon his feet his limbs double up helphashy beceast him, there can be little doubt that he is the subject of rickets. Even before the swelling of the articular ends of the lones has come on the onset of the disease may be supposed. Big, fat, dabby infants are generally slightly rickety, and if a child sweats profusely about the head, and is kept covered at night only with great difficulty, we can have little doubt that the characteristic signs of rickets are about to appear. In such a case attention should be at case directed to the child's mon the regularity with which he is taken out of doors, and the state as to ventilation of his alsoping-room, so that any errors in management may be promptly corrected.

In a morked case of rickets the deformity of the sheet, the bending of the boxes, the enlargement of the joints and bending of the ribs are sufficiently characteristic. Even the position of the patient as he sits with his leps crossed and his head fallen back between his shoulders supporting his feeled spine by his lands placed before him on the floor, embles us at

once to recognize the ease as one of well-defined rickely.

The complete reclosurous of this lower litchs in many of these cases in often a serious anxiety even to papents who regard the other symptoms with comparative indifference, for they fear lest the child should be "going to be paralysed." But although the patient has no idea of even playing his fast upon the ground, and ones hitterly when any attempt is made to pursuade him to do so, power of movement of the legalis uninquired. If the skin of the legs be pinched or gently peiched he at once draws his limbs out of the way. Of other local symptoms:—The mature of the antero-posterior spind curvature is readily shown by lifting the child up under the arms, when the weight of the pelvis and legs at once comes the spinal distortion to disappear. A lateral curvature is distinguished from the effects of pleurisy by noting the presence of signs of rickets and the absence of those of affasion into the chest cavity. The rickety head differs from a shall dulated by excess of fluid by its slaupe. Instead of being globtilar it is clongated from before backwords, with a characteristic squareness of the forebeal; and moreover this slape of head is assemted with other well marked signs of richets. The fortunelle does not always furnish trustworthy evidence; for although often degressed in richets and mised in hydrocephalus, these conditions may be repersed. Certainly a depressed fortanelle is compatible with a fairly regions effusion of intra-cranial fluid.

In the present state of our knowledge so differential diagnosis can be made, during life at any rate, between rickets and coteo unlaria. Cases where softening and deformity of bone are present most be assumed to be rickets. Fortunately, for all practical proposes, a distinction in any individual cone is noneccessary, as the measures to be adopted for the relief of the patient are the same whatever be the correct pathology of the esseons lesions.

Progress.—Richeta is not a fatal disease in itself unless the bony change, be far advanced, nor even in such a case does death often excess accept as a consequence of some external complication. As a rule, improvement begins directly necessary are taken to amend the unrelationers conditions in which the patient is living. The dangers of pulmonary cutarrh and ateleptasis in a child with great deformity of sheet are absorbers referred to and the serious consequences which may result from distribute in an infinite reduced to a state of serious weakness by chronic and putrition peed not be insisted upon. Of the nervous complications, large games stricking is sometimes a cause of sudden death, but reflex contribions excited by again

Enlargement of the spicen, liver, and lymphotic glands generally is very rare, but if present should excite great anxiety. It is more common to find enlargement of the spicen alone without any affection of other internal organs. In rickets, as has been said, the spicen is often the sent of atopic hyperplasis. This lesion, as it is an additional cause of mannin, no doubt introduces into the case a further element of danger, but the changer is dependent more upon the intensity of the rickety process than upon the degree of spicnic swelling. If the symptoms of nickets are comparatively mild, and due core by taken to shield the child from estarchal complications, the presence of a big spicen does not indicate the probabiity of a fatal termination to the illness.

Age has no influence upon the prognosis of sickets, and when the disease occurs as a sequal of inherited syphilis, it presents no special def-

culties in its treatment.

With regard to the permanence of the unsightly defoundies of bons, it is often astonishing to note the improvement which takes place after recovery from rickets in the deformities which seemed the most unlikely to be reduced. Large joints grow smaller, crosked tones become almost straight, and a distorted chest will recover itself in a surprising matter. In some children, however, inprovement goes on further than it does in others, and therefore, while encouraging the perents to believe that there will be considerable improvement, we must not be too amguine as to the

complete disappearance of all disfigurement.

Frontseed —In every case of rickets confirst over should be not to give cod-liver oil or tonics, but to imquire into the conditions in which the child is living; to ask about the food he is taking, the quantity affected for each ment, the frequency with which the meals are repeated, and the degree of cleaniness of the feeding apparatus. We should then turn to the subject of his clothing, the vestilation of his badroom, and the number of hours be is passing out of doors. The real treatment consists in attention to all these important matters, and not solely in the administration of any particular drug. Medicines are no doubt useful as helps in the treatment, but their importance is trifling as compared with that of a reformation of the unwholesome conditions under which the failure in matrition has taken place. The reader is referred to the chapter on the treatment of uducile atrophy for general directions with regard to the feeding and management of young children.

Almost all cases of rickets have been preceded by symptoms of directive demagement or bowel complaint, and unless improvement has already began we often find signs of looseness or intestinal demagement still persisting. This should at once be remedied. The belly should be kept warm with an simple flamed binder, and the child should take a drop of localization to control the under peristaltic action of the locals, with a few grains of the bisurbonate of soda to correct acidity, in an aroundic water sweetened with a few drops of spirits of chloroform three times a day. In many cases there is a special difficulty in digresting starch. In almost all instances we find that this variety of food has been given in great excess. The quantity must be therefore considerably reduced, and that taken should be gaserted with malt, as in Mellin's food. Hoff's extract of malt, in loses of two or three temporatals three times a day, is of great service in the or cases. If the child be no longer an infinit, the dist should be arranged as directed under the bending of "Chronic Diarrhon" (see page 640).

Pienty of fresh six should be insisted upon. The child, warraly elad, should be sent out in all suitable weathers, and if care he taken that has feet are well warmed before he leaves the house, there will be little danger of his catching cold. If the patient have resched the age of eight or ten mouths he abould be excefully packed with cushious in a perumbulator, and in cold weather should always have a hot bottle to his feet while out of doors. The centilation of his sleeping-room must be attended to. A small fire in the winter, and a lamp placed in the fender during the summee menths, will insure a sufficient circulation of air through the bedchamber. Both the patient and his immediate surroundings must be kept sempalously clean. Every morning the whole body should receive a thorough washing with scap and water, and be well sponged in the evening before the child is put into his cot. On account of the copions persperations his body linen, as well as that belonging to his cot, soon becomes asturated with necessary. His underelotting should therefore be changed as often as is precessary. Every morning, too, his mattress and hed-coverings must be thecoughly exposed to the air. The sheets also should

be changed frequently and be sarefully sared.

If the above measures are properly attended to improvement will quickly begin. Directly the lowests have been got into a healthy state cod-laver oil should be given. A quantity much less than that usually prescribed is, honorer, sufficient; for children infants especially, have comparatively small power of digesting fits. It is best to begin with ten drops of the light brown oil, and during its administration the aircle must be excefully trateled for any appearance of undigested oil. The quantity can be gradunily increased by a low drops at a time as long as none of the oil is seen to pass undigested from the bowels. Iron is also useful. Iron wine [R xx -tl.), the exsecuted sulphate of iron (gr. ij -iv), or the timeture of the perchloride (Fi v.-xv.)-all these are useful, and are to be preferred to any of the syrupy preparations. The latter are not fitted for rickety subjects, as the large quantity of argur they contain encourages fermentation and acidity, sail often, indeed, by the disturbance it sets up in the bowels, makes each close of the medicine decidedly projudicial to the patient. If quining le given, the tannate is the most suitable preparation. One or two grains should be suspended in glycerine and given two or three times a day. If there is any tendency to acidity left after rearrangement of the diet, the ammonio-catrade of iron may be given in a draught with a few grains of hierrhouste of sods and one drop of the fincture of nex vendes between meals.

The salts of lines were at one time recommended in the treatment of rickets, as it was supposed that the bone-softening was due to a deficiency of time in the system. In practice, however, the use of these drugs has not been found of value, indeed, the remedy, for my special benefit it

produces, may as well not be given at all.

The copious perspirations from the head and neck are always a source of great anxiety to the mother. They can be controlled by applying belladomy limited to the parts where secretion is copious before the child is put to bed. He may also take one drop of big atropic every night. Directly the tenderness has subsided stondy frictions with the hand slong or with clive-oil, all over the body, especially along the spine, are of great service and do much to strengthen the number. The nume should be directed to rub the child steadily for a quarter of an bour immediately after his bath. In the morning the open hand or a flesh glove may be used, in the evening it is advantable to coupley worm obvood for the frictions. In the child improves and his strongth begins to return, a cold or topol salins doucles, given as he sate in the warm water of his bath, will to of service.

Care must be taken to prevent the child's getting on his feet before his bones are sufficiently solid to bear his weight. As his strength improves he seless every opportunity of practising his newly acquired power of shunding, and very marked deformities of the tibia may be prochased by this means. In such cases support may be given to the hinds by the me of light, pudded eplints, and if the figurents of the joints are much related

a firmily applied clastic haplage can be nade use of.

The treatment of any deformities which may remain after the complete research of the discuss falls rather under the department of the surgeon. For the treatment of the various complications of rickets the rander is referred to the special chapters treating on these subjects.

CHAPTER IL

AGUE.

Carriers who live in indiarious districts are not except from ague; indeed, in early life the system is said to be particularly enceptible to the action of the undarious poison. During indiancy and up to the age of five or six years, the fever may assume peculiar characters, and onless detected early, and promptly treated, may even prove fatal. In more admined childhood the symptoms present little variety from those not with in adult life.

Cumition.-Ague is an endemic discuss, which is excited by residence in a malanous neighbourhood. An ague-breeding district is usually lowlying, marshy or ill-drained, and has a more or less porous soil, composed largely of rotting regetable matter. Still, these conditions are not always found mate it is places where ague abounds. A disintegrated rocky soil, which is very porous, and is saturated with water to within a few inches of the surface, may largely generate the analarious poison, although decaying temetable matter is entirely absent. A soil thus deleterious is rendered doubly notions by digging below the surface. Indeed, in some cases a spot previpendy healthy has been known to become malerious after disturbance of the soil for building or other purposes. Even a malarious district is only poisonous at certain seasons. In temperate climates the spring and anturns are the agreeish periods of the year. In the tropies the mission is evolved in the dry hot senson which succeeds to the periodic rains. The malaria is thrown out from the soil, especially at night-time, and rises to a certain distance from the ground. It is always more intense near the surface, being apparently more diluted or varified as the distance from the earth mercases. It may be carried by the wind to a considerable distance from the apot where it has been generated, but appears to be incapable of possing a broad sheet of water, and even a band of trees is found to arrest. the progress of the mission.

Amongst the residents of a malarious neighbourhood the disease is vary common. The children living in the district are end rarely to escape; for even if considered healthy they will be found, according to Steiner, to have the splean enlarged. Even the new-born infants of mothers who sudfer from intermittent fever may be found at birth to present the enlarged splean, the bronzed skin, and all the other signs of a pronounced malarious cochesia. It has even been affirmed that the milk of a contectic reman is capable of communicating the disease; but this statement require-

further proof.

Model starting.—When children who have been unifect to ague die, the only constant beion discovered is an enlargement of the spleen. During an acute attack, and for some time afterwards, the segme is engaged with blood so as to be asserted times its natural size. It afterwards distinishes in bulk , but if the otdel remain in the malariness district it continms to be harder and larger than natural. The cut surface is then pale and drysh, with white strice from thickened imbecule, and conclines it has a gray fint or even a speckled appearance from dark gray spots. The capsule is thickened and often adherent. Besides the spleen, the fiver a also congested during an acute attack, and afterwards may remain more or

less on argod.

Samples — In early life ague may occur either in the intermittent or remittent form. Both are common; for although in the shult the remittent form is rarely seen, except in the more arrives carrety of the disease, which occurs in tropical claustes, in the young child a comparatively feeble does of the poison may produce a profound-effect upon the constitution, and comes fewer of the remittent type cross in a temperate rane. In most cases the fever is quotiding, but it may be tertian and even, although rarely, quartan. The three stages of the attack are usually to be recognised; but they are less perfectly marked than in the adult, and are often characterised by possible features not found in after-life.

As often happens in the case of the abilit, the attack may not come on for some considerable time after exposure to the malarisms influence. Indeed, cases are sometimes met with in which a child, who is tree from fever while he lives in the agreeish district, only begins to suffer after he is us-

nested to a more healthy situation.

The cold stage may begin with very violant symptoms or may give only briffing indications of its presence. The shall may have a severe rigorr like an abilit, or may be taken enddenly with a convulsive science. If the latter the fit is mirely repeated, but is followed almost incombately by heat of skin and all the symptoms of the ascend stage. In infants neither rigores nor convulsions may be seen. Instead, the budy seems drawsy; frequently gaves; sometimes stretches itself; is previals and fretfal, refusing the bottle; and looks pale and prestrate, with perhaps some bridlity of the lips and finger-nails. In mire cases the bands and feet are cold to the touch. This stage is usually short. The temperature rises progressively throughout, and even at the beginning, when the child feels cold or actually shivers, is above the normal level. Towards the end of the stage

the mercury may register between 103 and 104 degrees of heat.

The bot stege is usually better marked. In this this skin is distinctly febrile; the child is drower and looks ill; if not finded, the face is pinchel and puls; and the head is said to be tender. The tongue is covered with a yellowish for, and according to Dr. Fruitsight it is not mechanism for the throat to be congested with a whitish deposit on the tensils. The shill tenerally thirsty and drinks greefuly; he often coughs—indeed, a cough is said by Dr. Fruitnight to be a constant symptom of the effect, the pube is rapid, feeble, and compressible. Pressure on the laser and spless chills signs of discendent, and both these organs on palpation are found to be enlarged. The child often venits, semetimes beinging up bile; and the howels may be related. Decisionally an letteric tinge is noticed on the skin. There is one symptom sometimes met with in a marked case which must not be emitted. This is a general bright redness of the surface. Such a rask, accompanied by a high temperature, and following rapidly upon a rigour or an attack of contralidous, would strongly miggest searintian, especially if ut the same time some reduces of the threat could be detected Through this stage the temperature continues to rise progressively, and towards the end has reached its maximum, which may be 105° or lights.

The third or executing stage is every imperfectly developed in the infect.
Other children may have out into a profuse perspiration like the stalt.
Still, whether the discuss and in eventing or not, there is a remarkable

fall of temperature at the end of the hot stage, and the thermometer will often mark 100° or 101° where a very short time before the princip had been as high as 100° or 107°. At the same time that this dimination in the boddy bent is noticed them is usually a profuse secretion from the hidneys, and the child passes a large quantity of limpid urins. According to Dr. Gee's observations, the proportion of uses and chloride of solium are greatly increased during the Lot stage, while the phosphates are diminished. As the temperature falls the amount of uses and of chloride of so hum diminish, while the proportion of phosphates is magnitude.

The duration of the attack varies. The hot stage, which lasts the longest, may occupy six or eight hours. After the attack is over, the child, if he is suffering from the intermittent form of the discuss, seems quite well until the next attack begins. If the fever is of the consistent type, the patient remains more or has feverish in the interval. He is therety, has little appetite, is impuble, period, and restless; looks pineted and ill, and usually lesses field. The wasting is sometimes increased by a troublesome districts. Often the fever, at first intermittent, may pass into the resultent form; and then, again, in its progress to such a recovery return to the intermittent type. In usual cases of the consistent form of the disease the fever runs a less acute course, and the temperature, although presistently circuit, does not reach the high level common in the shorter and simpler attacks. Thus during the paroxyssus it near rise we higher than 102° or 103°, and during the remissions may be little over 100°.

In children of feeble constitution, or reduced by chrome disease, the fever may assume very malignant characters. When the attack comes on the patient becomes stupid and drovey, and then quickly passes into a state of come from which he never review. Such cases are never seen in England. Dr. Lewis Smith states that he has twice met with this form

of the disease, and that in each instance the attack proved fatal,

Cirillien who live in malarious districts often exhibit signs of ill-health without suffering from actual attacks of fever. Such patients are thin and weakly; the skin is of a peculiar pale batty tint; the mucous membranes are pollid; the appetite is poor, and the bessels are control or related. The sphere is prominently subaged and hard. If the amenin is extreme, orders of the legs and antiles may be noticed. Sometimes, however, orders in these cases is due to discuse of the kidneys; for hematuria and allominaria are said to be not uncommon symptoms in children living in agree-breeding neighbourhoods. Indeed, in countries where malarious fever is prevalent the origin of Bright's discuse in the child is frequently attributed to a previous stack of agree. Cutarrhal paramonia is said sometimes to complicate the illness and may even pass into confirmed phthisis.

The more obscure forms of malarious fover, which are not uncommon in the adult, in the child are very man. Brow ages is unknown. Bohn, however, states that he has met with an intermittent terticollis which he believed to be referable to a missingle cause, and Dr. Gebrey has de-

earlbed an intermittent spinal paralysis also of andarsons origin.

Diagnosis.—When the discuse assumes the ordinary form not with in the could it is easily recognised; but when as often happens, especially in infants and the younger cirkbeen, the stages are imperfectly marked and the symptoms indefinite, there is much difficulty in the diagnosis. If the case assur in an ague-breeding district, subden illness and prostuition with a high temperature should always excite our suspectors, especially if no evident course such as counting or districts, exists to explain the altraing symptoms. Afterwards the sudden fall in the temperature which occurs
at the real of the hot stage, and the rapid return of apparent health as the
attack passes off—three symptoms, combined with calorgeness of the
sphere, are very suggestive of traincoss origin. When on the next day, or
the day after, the same phenomenon recur, ending as before in apparent
recovery, the nature of the almost can no longer be unsupposterated.

Fits of agus sometimes occur in children who are not at the time bring in a methodos district. If we were suddenly called to a child of when we had no previous knowledge, and found him looking ill with a very high temperature and signs of severe general weakness. We should be provided in regarding his condition with grave apprehension; for the fact of his having been lately exposed to the agus poison would probably not be reforred to. In such a case, after a careful examination of the patient, we should be able to come to no conclusion, and might probably suspect the caset of one of the stanthemata. It would be only on the next visit, on finding the patient when we had left in so appearently serious a state looking and feeling well, with a normal temperature, that the nature of the

illness would suggest itself to our minds.

If, during the last stage, the body becomes covered with a bright red rash, this symptom combined with the high temperature and perhips slight reduces of the throat, may more strong suspicious of sourlatins. If, lowever, we are aware that the phenomenon may occur, and find that the mah solution and the temperature falls completely in the course of a few hours. we should reserve a positive opinion as to the real nature of the eruption When, later, the same phenomena are exactly reproduced, the nature of the case can be no longer doubtful. Do Chendle has reported two sight rases. In one-a child aged two years and time months-the illness began at 8 a.u. with a starp recorn. A hot but it which was immediately group brought out a bright red such all over the body. At the wase time the skin was dry and burning, the temperature 102", and the pulse 110. There was no scremes of the threat. At the end of three hears the risk fields, and the next day the child was playing about as usual. On the following day—the third—an exactly singler attack took place; and later the phenomena were again repeated a third time. Quinne was then given, and the agree fits quickly came to an end. In a case such as the above, if there is no redness of the threat the reasublance to scaristian is less close. Even if the throat is sore, the pernime parecislorar redness of the soft pulies which is so common in scarlatina is conting; and, moreover, the redness in the fances is less generally diffused.

When ague assumes the remittent type, as it is age to do in both, both nourished children, the diagnosis is less obvious. In malaring districts it is well to suspect ague in all cases where pyreais appears in a young child without evalent cases. Still, the sources of error are unnerces, for a probable cause of elevation of temperature, such as dentition, may be present in a child who is suffering from a real agueith attack. Perhaps the last rule in dentitful cases to to prescribe quinne. We can do little harm by this practice, and may do great good by putting a step at once to attacks which in weakly subjects, if not arrested early, may pre-

date very serious consequences.

Proposit.—If the discuss he recognized and treated promptly it on usually he controlled with case. The first cases are those in which the real extent of the filters has been misopperhanded and specific treatment consequently withheld. Also, the exceptional cases where the child appears to be overwhelmed by the victories of the malarous potent, and passes rapidly into a state of comm, are said parely to end in recovery. But even in these cases, if the cause of the symptoms were recognised in time, it is possible that energetic stimulation and the use of quinine in large doses by common or hypoderunic injection might be successful in arerting a fatal issue. It must not be forgotten that in malaraous districts the specific fewers, and indeed acute illnessess generally, tend to run a more severe course than in healthier neighbourhoods, and that as a rule specieuses have a high rate of mortality. Children who suffer from the agus cachesia are bad subjects for the cruptive fevers; and in all such cases we should speak with considerable causion as to the potient's chances.

of recovery.

Treatment should be had recented to without unnecessary delay. Children bear quinne well. A child of twelve months old will take a grain and a half of the sulphate of quinine three times a day, and the fever will quickly yield to the treatment. The best way of administering the twenty is to rule it up with givenine and give it either in a spoon or in a wranglassful of milt; for milk helps to conceal the bitterness of the drug. The medicine should be continued for a few weeks after the attacks have consel but be given in diminished quantity or less frequent closes. At the same time it is desirable to remove the child from the malarisms neighbourhood. If this be impossible, it is well to give a dose of quintie twice a week for a musicherable time after the subsidence of the segures.

In cases where the child comits the quining, or where from other reasome it is not desired to administer the councily by the mouth, it may be thrown up the issued suspended in a small quantity of muchays, or may be given by hypothermic injection. In the former case the dow must be double that previously recommended for administration by the month. If the remedy is administered subrutaneously, Dr. Renking recommends that the pentral sulplants of quinine be used freshly dissolved in warm water; that the syringe and solution he both warmed before use; and that the mjection be made very slowly, distributing the fluid at the same time amongst the interstices of the cellular tissue by the ferefinger of the left hand, so that so lomp is left to mark the site of the puncture. It is found that warraing the solution and the syringe not only lessens the pain of the operation, but also reduces the tendency of the springer to deposit itself quickly in the cellular tissue. If used cold the quinine is almost always deposited at once in a solid mass before absorption of the solution can take place. Tale is, however, not injurious, but it retards the beneficial effect of the operation. The quantity of the drug thus administered should be a filth of that given by the mouth. For an afait the dose is half a grain. Probably one-sixth of a grain would be a suitable quantity for a child of two or three years old. In order to prevent correspon of the sorings it is advisable directly after the operation to wash the instrument in bot water and dry it enrofally, and afterwards to oil the serew well Instead of the solution the kinate of quining may be used. Mr. H. Cellier has peronamented this salt as the more suntable on account of its solubility for hypodermic administration

In some cases, especially in the older children, where there is much acute catargement of the liver and spicen, quinine seems to be useless. In these cases it is of great importance to reduce the congestion of the liver before beginning the quinine treatment. The child should take at right a dose of gray powder (gr. iv.) with julspine or compound scanmony powder, and the action of the bowels should be kept up for a week or two by doses

of some operiors saline. Sulphate of magnesia is very useful for this purpose, given with dilute sulphare acid and half a grain of quinine for the dos. The medicine can be under polatable with spirits of chloroform, glycerine, and tincture of arange poel. After the liver has been unloaded, the quinnetreatment in full doses can be returned to, or the child can take aranic (§ v.-x. of the solution three times a-day for a child ten years of age) with or without quinine, directly after neals.

In the more chronic cases, a combination of quinine and assente with iron is very useful. It is also of great importance that the child be retacted from the malarious district to a bracing sesside air. Moreover, is should be dressed from head to foot in famed or some weedlen material.

CHAPTER III.

ACUTE RECUMATION.

Represent inflammation of the fibrous tissues is a common affiction in early life. In childhood, indeed, there appears to be a peculiar tendency to rhomestism; and in young people the discuss may assume very special characters. The joints are generally affected, but other throus structures suffer as well. More often than in the soluli the articular inflammation is absent, and not infrequently it is very partial and takes an insignificant share in the illness.

The great exportance of rheunsations in children is due to the inflannation in and around the heart, of which it is so frequently the cause. The large impority of cases of heart disease are the consequence of themnatic sudocurrities occurring in early life. But besides the heart other fibrons structures may be attacked. The pleura may be affected; the meninges of the brain and spinal cord may suffer, and sometimes fibrous tasses in other situations may be implicated, as will be afterwards dearribed.

Acute rhemmatism is said to be uncommon under five years of age; but the accuracy of this mourtien is open to question. Infants and young clathron may not suffer from much articular swelling and pain, but it is a common experience to detect a cardiar mornour at the mittal orifice in a young child, and to discover, on inquiry, that the patient had some weeks or mouths proviously been foremal, with a lattle stiffness and tenderness of one or more joints, symptoms amply sufficient to establish the rheumatic

origin of the cardiac disease.

Consider. The principal cause of rheumatism is exposure to cold, or to cold and damp. In young cloiders and infants a very slight impression of cold may suffice to set up the disease. Thus, I have known a young child exposed to damplit from the nursary door, while being dried after a bath, before the fire, suffer shortly afterwards from stiffness and pain in the kness and endocarditis. Sudden changes of temperature are favourable to the production of rheumatism. In England the disease is much more rife during the spring and the autumn, when the evenings suddenly turn chilly and damp, then in the winter months when the temperature is more uniform.

Many influences favour the action of cold and moisture in producing rhearmtism. Family tendency will do this. A large proportion of rheamatic children come of rheamatic pursuits. Again, provious illness of the same kind predisposes to fresh attacks. When a child has once suffered from rheamatism, he is very likely to suffer from it a second time. The state of the health at the time of the exposure exerts some influence. The cristence of enterth of any nuceus membrans renders the potiont very sensible to chills, and makes exposure very dangerous to a child of thesmatic bendencies. Lastly, scarlating prolisposes with poculiar force to rheumations or to a discuss inhatinguishable from it.

Morted decrease — When a joint becomes the sent of rheumatic inflammation, there is reddening of the synocial membrane liming the joint, the synocial fluid is increased in quantity and often nellty, and there is notes effection of fluid into the surrounding tissues. Supportation in the

joint is very rare.

In pericarditis the pericardium is reddened and softened evaluation of lymph accurs on the arrows surface, and fluid is efficied into the cavity. The secons fluid and the more solid lymph cury greatly in amount, and either may be in excess. The quantity of fluid thrown out is selectimes enternous. It may be clear or opaliscent, or tisted red from blood Sometimes, as in pleasage, although his less frequently than in that disease, the fluid is puralent. The layer of lymph, also, may reach a great thickness. It may be smooth, or pitted with holes like a honogrounh, or related like the seasand. Sometimes the viscend and parietal byors are writed by soft thick bunds of lymph. If the inflammatory process in the pericardium is severe, the heart substance towards the surface is generally softened to a certain extent and weakened. If much tyuph has been there out, more or less complete nillesson is likely to take place, after alsorption of the fluid, between the opposed surfaces of the across neutrons.

In endocarditis the murbid appearances, when not congestial are limited almost invariably to the left side of the beart. The values because thickened and softened, and very soon granular on the surface. The granulations enlarge and develop into the so-called vegetations—outgrowths from the fibrous tissue of the value which may may greatly in shape and size. They consist of connective theore move or less perfectly organised. They are manife limited to the surface of the value and are often partially coursed by fibrinous deposits. Granulations may also develop on the chards tendinese. The softened thous of the value may tear, or the chards tendinese may materies; and the tension of the salve and the closure of the prifece may be scribbly interfered with. After a time the values may become thickened, contracted, and hardened Sometimes they athere to use another or to the wall of the centricle. In this way, also, the proper closure of the opening may be impossible, and the opening study may be impossible, and

Ulceration may take place, seriously affecting the valve itself, and tending to produce other grace consequences. It is the washing into the exculation of their one deposits and particles of disintegrated tissue from the ulcerated surface that produces embolism in distant organs—the brain, the

kidney, or the spileon;

Symptoms.—The disease begins subletely. The child, if old enough, complains of cold, and sits over the fire. He is unwilling to more about, sometimes wends, and may feel some stiffness of the articulations. Seen, pain is complained of in one or more joints, and the child takes to he bet. Whose the patient couses under observation his temperature is moderately high—102 or 103. His skin is generally made with a sour-smalling perspection, and on impaction we find the affected joints tender, workers and sufficient with a park blash. The child is thirsty, has little appearant less torque is forred. The arine is high-coloured and sounty, and is eften thick with tillustes. The bowels are confined. The patient may under at night; he sleeps hadly on account of the pain; and for these reasons (pain and want of sleep) his face is often haggard-looking, and his expression distressed.

The pain is at first of only moderate severity, but gradually grown worse. As long as the child to quiet and undisturbed he may not make much complaint; but if the limb is touched, or the bed is shaken, he at once shows signs of distress. The degree of pain and the ancent of swelling around the joint seem to bear no relation to one another. The actieulations affected are usually the larger once—the hips, the knees, elbows, ankles and wrish. It is exceptional for the small joints of the fargers and toes to be painful and swellen. Usually one or two joints are first attacked; these recover, and others become inflamed. The whole almost mer last a variable time, but the duration of the inflammation in each particular joint is comporatively short. It may pass away in a few hours, and rarely lasts longer than a sky or two. Sensetimes, after leaving a joint and passing to mother, the inflammation returns to the joint first affected; and in this way, if the illness he a long one, the same joint may be attacked again and again before the energy of the disease is exhausted. Even when the attack appears to be at an end, a sudden return of the sengteers may distress and disappoint the petient and his friends. Relapses are very common in rheumatic fever, and the symptoms may return, after a more or less complete subsidence, two, three, four, or even fee fines.

The activities inflammation, although the part of the discuss which cames the greatest disconfect to the patient, is yet, as it solders produces after ill-consequences, of computatively triding numbers. A far more important feature is the heart affection, which is so constant in expression of the makely. Inflammation of the filteres attractures in and around the least is an essential part of the discuss, as it attacks young persons, and must not be regarded as a more crossal complication. In exceptional cases, indeed, a child may have classical fewer and the least may escape; but in risemention all the filteres structures of the body need not be affected at some. The patient may have inflammation of one joint and not of another; the right wrist, for instance, may be affected and the left may escape; one leg may be emploid and the other sound. So the discuss may escape; one leg may be emploid and the other sound. So the discuss may escape; one leg may be emploid and the other sound. So the discuss may escape; one leg may be emploid and the other sound. So the discuss may escape; one leg may be emploid and the other sound. So the discuss may escape; one leg may be emploid and the other sound. So the discuss may escape; the joints. The younger the child the more likely is it that the discuss will instead upon the heart to the exclusion of the articulations.

The occurrence of elementic inflammation of the heart and pencardium is not at once anomaced by any striking change to the syng-tons, or even in the aspect of the patient. Indeed, it is matter for surprise how complete in most cases in the absence of all external indications that as important an addition has been made to his illness. Often the only sign of suplication of these organs is derived from physical summation of the chest.

In rhesimalic inflammation of the periodician flow is in ordinary cases neither pain nor tenderness; we notice no special hurry of breathing or of pulse; the heart's action may be irregular, but there are no pulphtations; there is little change of redour in the face; and, unless the joint affection be severe, the temperature may be only moderately raised, or may seen be normal. In spite, however, of the absence of supptoma the child looks all; and while up and about—as he usually is before coming under the notice of the medical attention, if the articular inflammation is not sever—lie countermess were an expression of distress which quickly attracts the attention of his friends.

A little girl, aged three years and a half, was admitted into the East London Children's Hospital. She had had a slight-cough for a fortnight, and was said to have looked ill. On examination, there was found didness of pyramidal shape in the procondul region reaching upwards to the left stemo-chandral elevicular, and to the right as far as one dapers. broudth beyond the right ofge of the steenum. The spex-heat of the brast was behind the fifth rib, slightly to the inner side of the ripple line. A faint impulse was felt all over the procordism. The heart-sounds were modfed, and a soft double friction sound was hourd at the base. The child complained of no pain. There was no affection of the joints. The oil organs were healthy and the temperature was normal. A week after-wards it was noted: "The eardine dulness is as at last report, and there is the same fraction to be heard over the precordial region. Since admission the child has hed no exceptores, and the temperature has been gaperally subnormal. Still the patient looks ill, and there is a distressed enpression on the face even during sleep. In now (3 s.m.) Ising askep on his back, inclining to the left side. Pulse 88, regular; respiration 28, turns not acting. Some slight lividity about the mouth and under the eyes. Gen ceral puller of face, with a faint tinge of pink on her checks. Leps noise pals. The superficial voins are visible over the soles of the neck and the backs of the hands, although not greatly enlarged." After a few weeks the physical signs of the heart became normal, and the ciril's health was perfeetly restored.

The above illustrates very well the general appearance of a civil who is the subject of pericarditis. In the large majority of cases, although is may look ill and be langual, yet if there be no joint affection, he makes no special complaint. An examination of the chest at once reveals the cause of

the indisposition.

Still, it is right to say that in exceptional cases much arore serious apapteers may be noticed. There may be tunnilmous action of the heart, with great dyspaces or even orthopnous and lividity of the face. The countnance may express the utroost anxiety, and the restlessness may be extreme. There is mently, also, some puffness of the face, and elight but general column. The gravity of these cases is probably awing to the participation of the heart substance in the inflammation. Again, in still other cases we find symptoms all pointing to the brain. There is high fever, with heatacts and defiring (see page 159). Such cases are, however, clarify inteseting from their racity. They occur very soldom even in hospital practice, and are clinical curiosities which for practical purposes may be jut on one side.

The beginning of pericardial inflammation is indicated by a more or less load rule of fraction accompanying the sounds of the heart. The subis best leard at the base, and is double, the systole and discole being accompanied by a distinct eatch or acrops, which is very superficial, and contage the impression of being generated at a point nearer to the car thin the sounds of the heart themselves. Even if there be at the sour time an endecardial moment, the friction sound can be in most cases readily separated by the practiced car, through its higher pitch and more superficial character, from the lower patched and more sleeply sounding narman guarated by the inflamed cales. A pericardial friction-second is not, haveon, always high patched, and even its superficial character may not be so decidedly marked as would be expected. In certain cases a load blaving sound is heard, which is indistinguishable by the cur alone from a similar sound of endocardial origin. Its mechanism must be then decided by other considerations.

At first there is no alteration in the precordial deliness, but in a day or two, as finid is poured out from the inflamed arrows membrane, the limits of the boart's deliness are extended. At the same time the position of the aper-best of the heart is raised, and the cardine impulse is feebler than before.

A little girk, aged soven years, had a mild altack of rheumation followed by choose. Six neutlis afterwards the choreic movements returned, and she was admitted into the East London Children's Hespital. At this time the heart's open sees noted to be beating between the fifth and scallribe, one-fourth of an inch outside the apple line; and a soft systolic normal was heard at this spot. After being a few days in the hospital, the child's temperature case from normal to 163.8°, and a double sub-was detected over the precordial region. There was also a patch of pacunonia at the base of the right lung. Some days afterwards efficient was found to have occurred in the pericardine, the limits of the heart's dishness were extended, and the heart's apex was raised to between the fourth and fifth ribs in the copple line. The double friction was still bound—most distinctly at the level of the third left stress chouded articulation.

If much lymph and little fluid be thrown out, the hand placed upon the procordial region can often detect a distinct fromits with early lead of the heart. When a considerable quantity of fluid is efficient into the periordism, the resulting area of dishoos takes the shape of the containing set. It becomes triangular or "permidal" in form, with the spec dirocted upwards towards the top of the sternom. A moderate efficient does not prevent the friction-sound from being board, but the rub becomes less intense and less crop than before, and the heart-sounds are muffled and district. In great effusion the clost-wall in the cardiac region may be bulged, and on careful inspection the sys can often detect a distinct undulatory movement with each best of the heart in the intercectal

STORES. An important distinguishing mark of perioardial friction is, besides its superficial character, the irregularity of distribution of the sound. Endoembid corners are corned along with the blood-current. Pericapital fractions may be finited to a small tree, or heard equally locally over the whole procordial region; in either case they do not follow the pales which regulate the transmission of beart-nurmurs. Further, a pericurdial rub is intensified by pressure, and is heard better during expiration than when the lungs are expansied. As the find and lymph become absorbed. the limits of dulness gradually return to their former dimensions; and the friction after a time becomes fainter and fainter and gradually disappears. If the brugh has been emded as large quantity, adhesion of the periousdiam may take place. Unless there be also adhesion between the periodsliam and the adjacent plears, there are no physical signs by which this condition can be detected. If the please and pericurdian be adherent, the intercestal space corresponding to the spec of the heart is depressed at each impulse. Although perseardium is generally followed by hypertrophy of the heart.

The fluid in percenditis sensetimes becomes purified. The importance form of percenditis is more common in cases where the inflammation has extended to the percendium from the pleura; although it may no doubt also occur without the pleura having been previously affected. In the cases of this form of percendial inflammation which have come under my notice, the potients have complained of pains in the chest or epigue-tram; the temperature has been high at night (163' to 101'), with a purtial morning removiou; percential fraction has disappeared early, absorption of the effusion, if it had begun at all, has been slow and incomplete, and towards the end of the disease slight but general orders has been

noticed without any allumen being discovered in the urine. These cases

almost always and fatally.

When endocarditis occurs, the valvular lesion is indicated at first by no external signs, and can only be discovered by physical examination. With the stethoscope we hear a low-pitched soft marmor at some point of the precordial surface, indicating, according to its alto and rhythm, obstruction or incompetence of one or another of the cardine valves. The at fection of the valve may be accompanied by increased frequency of the pulse and some pulpitation; but while the patient is at rest in bed then symptoms are very exceptional. Tenderness is lover present, and it as more for the child to compain of pain or uncomess about the chest. The valve affected is most commonly the mitral, although the acrtic sendancy valves are sometimes influent alone, or in conjunction with it. The asions are almost invariably limited to the left side of the lower.

Endocurditis may occur without implication of the pericurdinm, or the two besions any be combined. In the latter case the undocurded marrier may be completely masked by the external friction-sound, and may only be discovered as the latter subsides. If nuncompanied by inflammation of the pericurdinm, endocurditis, although a very serious misterime as regards the future of the patient, adds little, if inviting, to the immediate

dinger

There is one accident which accustings occurs as a direct result of andocarditis. The avgetations on the inflamed valve may undergo distrigration, and minute particles swept away into the general carculation may become arrested in the small arteries of a distant regar. Elecation ardocarditis is not a common disease in children, but it is occasionally not with. This complication gives rise to symptoms which may be austaken for those of governs or of continued fever, as close sometimes is the resemblance. They are purtly constitutional, owing to admixture with the blood of decaying alons of argume matter from the disintegrating value. portly local, from embelious which interfere with the function of special organs. Thus there is high fever with marked remissions; great weakterm and presentation; a formed dry tongue; often siekness, and perings districted, thirst, and morecain. The perior is small, rapid, and week; the breathing hurried; and the child gradually becomes reathes and delrious, or drowny and complose. The beal symptoms are derived from the versus or organs, where function is interfered with by arrest of embelitz their minute arteries or conflories. Thus, embelisms in the skin product potechin from minute extramantions; in the liver, swelling and perlays pundled; in the kidney, albumen and blood in the water; in the splein, swelling and tenderness; in the brain, pumpus; or if from small dissenseated emboli, headache, delariou, and come, without special interference with nector function. In all these cases examination of the heart reveals like signs of valuntar disease. The cases generally and fatally,

The plears is often affected in rheamatism, alone or in conjunction with the pericardians. Plearisy and pericarditis may occur simultaneously at the inflammation may spread from one membrane to the other. When the two discusses are present together, the inflammatory processes in the two situations may be perfectly independent the one of the other. The effusion in the plears may be parallest, and that in the pericardian occus;

or the pericardium may contain pus, and the pleum pure-grain.

A little boy, aged air years, died in the East Landon Children's Hepital of plearisy and pericarditis. On examination the right lang our found afformat to the pericardiam, and partially to the chest wall. It was condensed and tough from pressure, and the plears of that side contained a large quantity of clear fluid. The pericardium was adherent to the heart in places, and in the sar were about two owness of thick pass. In this case the illness had begun with sickness and pain in the side, followed by cought—symptoms which pointed to plearing; and three weeks afterwards, when the child first case under observation, there was alight but distinct contraction of the right side, shown by levening of the shoulder and angle of the scapula, with distinct curving of the spins—the convexity to the left. These signs, taken in conjunction with the history, seemed to indicate that the plearing had dated from the beginning of the illness, and that therefore, if it did not give rise to the pericardius, was not, at any rate,

ascondary to at. Passmonia is not rare in rheumstic fever, and may occur in conjunction with planning or independently of it. A much mrer lesion is usuingitts affecting the membranes at the convexity of the brion and those of the spine. These cases are characterised by high fever, headachs, and deliming. Still we must not suppose that in every instance where such symptoms occur in the course of scute rhomostium they are due to inflammation of the cerebral meninges. Many cases are now on recent in which these symptoms have been present, with others—all pointing to the head as the seat of the loster, and yet on dissection of the dead body no signs of disease have been discovered within the cranium. Dr. Latham has described a case of this kind which occurred in a little scholar at Carast's Hospital. The boy had high fever, bushehe, delinion, and convulsions; and died in spite of energetic treatment directed against a supposed meaingitis. Examination of the body disclosed no discuse of the lumin or sts mornbrunes; instead, there were all the signs of a severe perioarditis—a disease which had not been so much as suspected during life. some believed this form of "correbeal rhomation," which leaves no trace of intracessial inflammation behind it, to be a neurosis depending upon actue such mysterious medification of nerve-substance as is believed to cecar in hysteria and telamas. The symptoms may, however, be explained more simply by attributing them murely to the effects of hyperpyrexia; and that is the view commonly accepted in the present day. Such a case his never come muler my observation , nor have I ever seen a case of rheumatic iritis in the child nor of peritonitis occurring in the course of acute meumatism.

Peritonitis may, becover, he simulated by rheumation of the abdominal muscles which scenetimes occurs in children. If this be sovere, there is tenderness on pressure of the abdominal wall, the child may have an appearance of great distress, and may lie in bed with his larges flexed on his abdomin, as if he were really suffering from inflammation of the peritonerm. The bowds are usually confined. These cases may be readily distinguished by careful examination. The face, although often distressed, has not the laggard look which is so characteristic of peritonitis; there is little or no tension of the abdominal wall, the natural markings are not lost; the tenderness is not extreme; the pulse is soft, compressible and of moderate quickness, not rapid and hard; and the temperature is normal to only slightly clevated. There is possessly great acidity of union; it is scenty and high coloured, and its passage may cause some scaling.

Torticollis (stiff-neck) is sometimes a consequence of rhermatism. The disease may affect the numcles, especially the sterno-mustoid; or may attack the fibrous ligaments uniting the vertebras. The nervous system, too, may suffer. Neuralgia has been noticed in some children; and paralysis of the muscles of one side of the face may be produced by the maticipal throughouten of the sheath of the lacial acres at its point of exit from the bose. Moreover, there is an ovident connection between rhemistical and clarent. This important subject will be considered elsewhere (see Clarent.

A peculiar manifectation of rhemmitian is sometimes found in adddren. This was first noticed by Meynet, and is characterized by swelling verying in number and say which appear in the tenders and their shouls, and in other fibrom structures which his close under the skin. This they are seen around the patellaund the milliodi; on the spinous processes; on the temporal ridge, and on the superior curved line of the occiput. They are very hard; are accompanied by no reduces, tenderness, or pain, are sometimes movable; and disappear after a time spontanously. They are composed of small masses of lease fibrous bundles, and are very macular.

A little girk nearly ten years old, was under my care in the East Legdon Children's Hospital for an attack of riscountic forcer complicated with clares. She had a harsh systolic moments at the apex of her heart, which evidently dated from a previous attack of endocarditis; but the spea-best was not displaced, nor were the normal limits of the heart's duliness arbended. In this child fitness nodules were found on the spinous processes of the vertebox, the preminences of the scapala, the head of the right had. The nodules varied in size from a split just to a large matche; they were not tender, and the skin over them was not adherent. While the child remained in the bespital her temperature never at any time rose above 100°. The swellings gradually diminished in size, and by the end of the north

had almost completely disappeared.

The duration of the rhoumatic attack is much longer in some children than in others. It may be variously estimated according to the method upon which the reckening is conducted. If we take into account namely, the joint affection and the general symptoms, the disease may be considered over in a few days. A child may be taken with high fever, and couplin of pain in our or other of his joints, which is found to be red, swoller, and tender. In twenty-four or forty-eight hours the articular inflammation may be at an end and the temperature normal. But it does not fellow that the disease is over; and if we at once begin to treat the child as a convolement, we may find reason to regret our preripitation. Series influmnation of the pericardime and liming membrane of the boart is quite compatible with a normal temperature; and these internal lessons may be only beginning when the external signs of the disease are on the wase. At it is only in exceptional cases of rheumatic fewer that the loant does not waffer, and as the mildest attack of perionvilitie is seldon over below a week has gone by, eight or ten days must be considered the emilest period nt which convalenceace can be und to begin,

In other cases, if there are frequent relapses, the discuss may be prolonged for many weeks, the inflammation leaving joints and returning to them with wearsome repetition, and the pericardial inflammation using and writing with similar persistency. In this may an attack may be make to list six weeks or two months. It is, however, only right to say that since the introduction of the salicylates these cases are much rarse than

they used to he;

Although the joint affection in shownstien is usually an acute discise, and comes when the attack is at an end, yet this is not always the co-Children with strong rheumatic tendencies, and who have had several # tacks of rhermatic fever, may complain of wandering pains in the back, nack and loans, and of transient discomfort and stiffness in a joint from time to time, especially in the variable seasons of the year, without having on take to their bads. In such patients there is general impactment of health, appetite is poor, and mutrition is unsatisfactory. The child is often excessively nervous, sleeps budly at night, and is changeable in temper. Dr. West has connected these symptoms with the little and disthesis. There is no death that such children are subject to smally deposits in their arise, and to abundant secretion of area.

Disposis. - When the joint affection is well marked it can scarrely be mistaken. An acute articular inflammation which files from joint to joint espraiously, is accompanied by redness, swelling, and extreme tendemose, and in a day or a couple of days has proved completely away from the joint first attacked, to run the some rapid course in anothersuch a disease can only be rheunistion. Real rheunistic joint affections are very transitory. If redness, pain, and swelling persist in a joint supposed to be rheumatic, we may suspect strongly that the true cause of the lesion has yet to be discovered. It is often difficult to decide the nature of the obscure pains and stiffnesses from which some children suffer. The socalled "growing pains" are often rheumatic in their origin; and if they occur in shildren of decided rhemustic family tendency, should be regarded with extreme empicion. A careful examination of the chest will often clear up obscurity, and it is unfortunately too common to find serious valvular or periosolial mischief associated with a very trifling amount of articular or even nunscular pain in young subjects. A to and too friction sound over the precordial region, if decided, is very imperious in itself of pericurdial information. If the child look iil, and especially if there be also increase of the heart's dalness, the evidence in its favour is complete. A faint double rub at the base of the heart is not in itself sufficient to establish this conclusion; for such a friction may be produced by slight roughness of the perioudial surface, from prominent vossels or other cause, when the membrane is quite free from inflammation.

Dulness of periodical shape in the precordial region, although very suspicious of periodical effector, is not conclusive; such a dulness may be produced by a mass of enlarged glands in the arterior mediastinum. Extension of dulness to the left, beyond the point at which the ages bents, is said to be a positive sign of effection. The increase in the dull area when the patient is placed in the creet position is often absent; when present, it is, no doubt, an additional proof of fluid accumulation in the

and of the beart.

When the fluid becomes purulent, as it may do at an early date, the nature of the contents of the are may be inferred from the variable temperature, the mercury rising every night to 104° or 196°, and sinking in the morning to the normal level, or even below it; the early subsidence of the friction, although the amount of the effusion remains unchanged; the stationary character of the dulmess, showing want of absorption of the finid; and the appearance, after a time, of more or less general underns without albuminums.

On account of the frequency with which pericarditis and plearity are combined in young children, we should never neglect to make a careful examination of the heart in every case in which we have accertained the existence of pleared inflammation. Pericarditis, under these caream-tances, is not may be detect, as the dulaces in the prevential region is attributed to the efficient in the obest cavity. Unless, however, the pleared efficient he very great, the percussion note in the infra-clavicular region is very different from that obtained in the percordis. If, therefore, we find complete duliness towards the upper part of the sternom, and a fairly resentant or wooden note below the clavicle near the acromial angle, we may strongly suspect accomplation in the perioddistate. Priction over the heart may

then be generally heard on careful anscultation.

A difficulty cometimes arises in these cases from a pleural friction of earding slighten being heard at the limits of the pericordion. This is owing to the action of the heart causing a newement between the adjacent pleural surfaces. In these cases if the child be obt enough, or sufficiently trainble, to follow directions, we should lasten at the sent of friction while the treath in held after forced expiration, and if the rule cease or be hard only at this spot, it is probably due to the cause referred to. It is not

always possible, however, positively to exclude pericurditis.

If we hear a blowing murmur at the spex of the heart, the question of valentar competence has to be considered. All blowing nursion at the upex must not be taken to indicate regurgitation, nor, indeed, are they a positive sign that the endocardison is influed at all. The margar may be the consequence of regargitation, of roughness of the valve or outlier lining, of anomic dilutation of the ventriels, or of more alocemal tension of a healthy value, and there is nothing in the quality of the sound to show to which of these cames it may be properly assigned. If however, the accord sound is evidently intensified over the pulmousry artery; if the muraur is board at the angle of the empula; and if, with a full centraction of the left ventricle, the pulse is feeble, small, and irregular, we may confidently pronounce the mitted value to be insufficient. Still, regurgitation may take place without giving rise to these signs. Therefore, in most cases we must reserve a positive opinion, and wait until sufficient time has claysed to allow of nutritive charges taking place in the wall of the heart. If there he no displacement of the apex-lead at the end of twelve months, we may be extrafted that the cause of the manner is not regueritation.

A recent margain is very soft in quality and of late pitch. After being in existence for some months it becomes laurable and its pitch rises. If it a case of sents electrostics we bear a bards and loud endounded normal at the apex, we may be sure, whatever its mechanism, that it is not of re-

cent origin, but is a relic of some former attack.

The diagnosis of alcorative endocardidis has been already sufficiently explained. If we find that a child, who has lately suffered from an attack of scute rhenomation with endocardidis, remains forerish, with rapid abvalors and depressions of temperature, such as are characteristic of supportion; if he pass quickly into a typical state with day brown torque, lost of appetite, hurried breathing, and signs of great prostration, we should suppect the presence of this complication; and if we find evidence of amble

Frances —The immediate prognosis of nexts thereating is selden otherwise than foreunable. Even the existence of endocumbing and influentation of the periodicum cannot often be regarded as giving rise to say fear of immediate danger. Still, it is well not to speak too periodicing predicting a favourable issue to the illness. In acute rheansation—even in the unifiest cases—there is a tendency to hypertrastic; and the rapid formation of a clot in the right tentricle of the heart or in the pursonal artery may be a cause of scalden death. In some instances this distrasting accident happens quite unexpectedly in a case which is running a fix-

courable course, and may even occur at a late period of the disease after correlescence has seemed to be established. Again, in rare coses, periodditis is a cause of death. When the effusal fluid is or becomes puralent.

the danger is great; and few such cases recover.

The ultimate consequences of an attack of rheumatic fever may be very serious, for the large majority of cases of heart disease can be referred to this cause. But, as already remarked, the mechanism of heart-marmora is so various, that the mere existence of a blowing sound at the spec of the heart is no indication in itself that serious consequences are to be appreciated. If the child be seen during an attack, or while the number is still recent, it is impossible to speak with certainty as to the gravity to be attached to the phenomenon. If, after a time, we discover signs of dilated hypertrophy of either ventricle, with displacement of the heart's apex, and accentuation of the second sound at the palmonary cartilage, we may positively assume that acrious incompetence exists of the satural value.

Endocardial normans arising during an attack of rhomation in children sensitines disappear. It is probable that in all these cases the mortid sound was generated by other mechanism than valvular incompetence, for I have never known the anscultatory sounds to become healthy except

in cases where the heart's apex has retained its normal situation.

A little boy, aged eighteen months, with sixteen teeth, was beyoght to me in November, 1874. A few months previously he had seemed to have prin and stiffness in some of his joints, and had been a little feverish. Since that time he had been subject to pulpitations which were sometimes violent. On examination I found a local basic systolic nursiar conducted to the second right cartilage, and at the spex a less lood mitral mormur. The spex-best was normal. In Murch, 1875, I saw the stold regain. The apex-leaf was still in normal site. The heart-counds were a little muffled to the ear, although no murant could be heard at either the base or the spex; but on this occasion no attempt was usude to excite the keart's The patient was seen for the third time in March, 1881. He was mor nearly eight years old, and of average height for that are. Although rather thin, he was stated to enjoy good health, and never complained of polpitations or of breathlesaness. The position of the aper-best pranting-l unabered. The first sound was muffled, and after the boy had been made to run round the room, a faint systolic marmer was developed at the spec-It could not be heard at the angle of the sespola-

In this case the basic marrows disappeared, and that at the apex became so in listing that it could only be detected by exciting the beaut's action. Whatever may have been the course of the abnormal sounds first heard, they were apparently the consequence of sheumatism. Still, it seems certain that there could have been no organic lesion of valve, for in the course of nearly seven years no alteration in the nutrition of the heart

had taken place.

Tremsont.—A child the subject of scute rhematism must be kept in bed; the inflamed joints must be wrapped in critical wool kept in place by a firmly applied flumed bandage; and the class should be also enveloped in the same nuterial. A operating purpe should be given to produce from action of the bowels; and salicylate of sods should be admirestered without unnecessary delay. Children as a rule, bear this remedy well. It is exceptional to find any ill effects resulting from its employment. For a child of five years old, ten grains of the salt may be given every two or three hours with tincture of essage poel and glycerms. Within two

or three days, sometimes within a few hours of beginning the treatment,
the temperature falls, the pulse becomes less frequent, and the joint symptoms are moderated. The pulse namely losss in strength as well as in
frequency; and the depression induced by the action of the drug upon
the nunscalar filtres of the heart is sometimes so great that its administration has to be supplemented by the free use of stimulants. This effect of
the remedy is, however, less common in children than it is in the adult
and I have rarely been obliged to discontinue its use for this remon. It
sometimes causes distressing conditing, and occasionally suction spistatio
which may be obstinate. If, on account of any of these accidents the
treatment has to be suspended before the discuss is completely subdued,
the temperature often rises again, and the joint affection may return.

In a small minority of the cases the medicine, although well borne appears to exercise no influence upon the discuse, and even when it borns the temperature and subdiscs the joint affection, it seldous prevents the cocurrence of cardine or pleural inflammation. The first signs of percapditis may be noticed when the patient appears to be under the influence of the remody; and I cannot say that in any case the course of the percardial discuss has appeared to me to be shortened by the use of the subcylate. Still, if only for its influence in reducing temperature and checking articular inflammation, the drug would be a most valuable one, and we should not be doing our date to the patient if we neglected to employ it

In cases where the salicylete cannot be used, we may adopt the affalias treatment, giving bicarbonate of potash in ten-grain does every three or four house. If thought advisable, the bicarbonate may be combined with quaine; or we may prescribe a mixture of quinine with indide of potassium, as recommended by Dr. Greenhow. The objection to the alialize plan of treatment is that it encourages the tending to ansenia. It should therefore be supplemented by the early administration of iron when the joint pains have subsided. The method of treatment advocated by Dr. H. Davis, which consists in excircing the affected joint with a thin less of blackering fluid is a painful proceeding and ill-susted to young patients. The less bond application is a thick layer of cotton wood, with a family applied fluinted binder.

If there he much pain in the joints, a small dose of Dever's pewder can be given at night (gr. ij.-iij. to a child of four or five years old). Caloral must not be used during the administration of the salicylate, as it sho has

a depressing effect upon the heart.

Hyperpyrezia is not common in case of rheumatic fever in children and indeed, it is difficult to say what degree of elevation of temperature out in an ordinary case be accounted hyperpyrexis in a child. An injurious amount of fever is usually accompanied by symptoms of mental disturbstice such as are characteristic of the so-called "cerebral rheumatists." If these are absent, it is unnecessary to attempt to reduce the temperaturby boths; unless, indeed, the pyrexis persist and seem to be injuriously affecting the patient's strength. I have never seen a case of rheumatic bver in a child in which I have felt it peccasary to ampley cold.

The diet is acute rheumatism must be simple. While the fever presists the child should take nothing but milk and fresh-most broths, with a little dry toust. When the temperature falls, a more generous diet may be allowed; but for some time attention should to paid to the quantity of fermentable matter, such as starches and awards, taken by the child. The appearance of lithates in his water is a sure sign that some modification is

his died is required.

Directly the existence of pericarditis is ascertained, a blinter should be applied over the procordial region without loss of time. I perfect the blistering fluid for this purpose as most certain in its action, and use at to quite young children. It is of extreme importance to check the pericardial inflammation early, and there are no mans at our command so efficiences for this purpose as a blister. In many cases the effusion begins to disappear as the blister rises. If there be much offusion, and the joint affection have subsided, I am in the liabit of giving large doses of the iodide of potassium, alone, or with the tartrate of iron. The iodide is in my opinion of great value in removing secons effusions, if given in fall doses. To a child of five or six years of age I give ten grains of the iodide three times a day, and have never seen ill effects follow its employment. On the contexty, its value in counting absorption and restoring the natural state of the membrane has appeared to use to be very decided.

In endocurditis, also, blistering alphald be employed; and if the temperature has fallen, iron and quinine should be prescribed. The same tonic treatment can be adopted in cases of pericarditis after absorption of the effusion, for the patient is usually left assemic and weak from the attack, aspecially if he have been treated with the adicylate of sola. In all cases where the disease has been complicated with endocurditis it is advisable to keep the child in bed as long as possible; and even when he is allowed to get up it is wise to enforce the utmost attainable quict. In those cases the heart is more likely to recover itself if its action be not excited; and, induced, judicious care during complements may largely influence the future well-being of the patient. Complete rest upderates the heart's action, and allows time for the healthy removal of inflammatory products from the rules. If such products become acquained, they contract the tissues and cause packeting of the valves, with all the cells which the resulting hipdrance to the ricrelation must inevitably entail.

If supportation in the pericardism is suspected, the sac should be carefully panetured with a hypothermic syringe in the fourth or fifth interspace, near the left edge of the stemms, to make sure that the fluid is parallent. If it prove to be so, the question of evacuating the contexts of the pericardism must be considered. Professor Rosenstein has reported an interesting case, in a boy of ten years of age, in whom recovery took place after the sar last been emptied. The pericardism was opened by meiston in the fourth space, near the sternum, and after the pas had escaped, two drainage-toless were passed into the wound, and antiseptic dressings were surployed. This form of pericarditis is so fatal that the operation should be decided upon if the state of the patient offer the slightest prospect of its

WALCOURS.

Muscular rheumatian, whether it affects the abdominal wall or the muscles of the nesk, must be treated with stimulating applications and with warmtle. A good ascennial purge to relieve the bowds is useful.

In cases of chronic joint pains affecting children who are old sufferers from rheumatism, it will be often necessary to change the conditions under which the patient has been living. However to a warm dry six will often do wonders. Great attention should be paid to the action of the skin and hidneys. Five or six grains of bicarbonate of potash, with an equal quantity of citrate of iron, given there times a day, will be found of service. Fermentable matters and scid-making articles of diet should be taken with moderation.

CHAPTER IV.

SPONTANEOUS GANGRENE.

Amosom the non-infectious general discuses may be included the emons condition in which apparently spontaneous gangrens becomes developed in various parts of the body. The lesions are often symmetrical, but are not so in every case. Sometimes the lower limbs are the parts affected; but portions of the face and trunk may be also attacked. Children, the subjects of this tendency, are not always cachectic or otherwise endeded; although in many cases the gangrenous process occurs in convelexants from neute or depressing discuss. After meades a special dispersion to gangrene is occasionally discovered. The same tendency is displayed, but less frequently, after other acute specific discusses, as sombtim, enrich surricella, and enterir fever; and insunitary conditions generally, conduced with poor food, have been cited as predisposing causes of the gangrenous bostons. It is said to be more common in cold than in warm weather; and some observers are disposed to look upon a low temperature of the sir is one of the causes of the mischief.

In the case where the disease appears in a well nearished child who has not previously been subject to any enfeething influence, the etiology of the lesion is obscure. Raymond, who was the first to describe a "symmetrical gangrene of the extremities," attributes the affection to a spasse of the arterioles, followed by a magnition of blood-ecoposeles and transplation into the skin. He states that he has roticed, with the aphilminoscops, space of the arterioles of the fundus occuli in these cases. The disease is sometimes associated with intermittent hometaris; and Dr. Gee his reported the case of a little girl, aged five years, in whom gangrens of the valva was combined with embelism of the kidney and the brain. Still, in many cases no lesion of the viscera or arterial system is discoverable on the closest investigation; and no evidence has yet been brought forward pointing to any centric or nervous defect capable of exciting mortification of the lissars, although the symmetrical distribution of the lesions is suggestive in many cases of some such mode of origin. Dr. Nedopil, in explaining the mechanism by which spontaneous gaugeens is produced, assumes the paistence of a functional nervous demogenent. This writer agrees with Reynoud in ascribing the arrest of circulation to a space of the walls of the arterioles in the part affected. He supposes that owing to irritation of sensory and contribetal nerves the reflex centre of the emo-constructors which control the circulation at the extremities of the limbs is excited. If the spasse be prolonged and be sufficiently intense to close the arieral channels, pragress of the part may be induced.

Children of all ages may suffer from the disease. It may occur incodiately after birth, or may appear in later childhood. It is not always fatal; but if the gangerne is extensive and penetrates decayly through the

skin, it soldon terminates otherwise than unfinourably.

Gargene as it affects the mouth and the lang is described elsewhere. In the present shapeer gangrous of the skin and underlying tissues will alone be considered.

Merkel Androop.—Gaugeren may affect the healthy skin or may attack a blactered surface. In the first case the skin becomes dock blue in colour, and then almost black. Its consistence varies. Sometimes it is hardened and feels dry like purchasent; in others it is softer and moist. At the nargins of the gaugernous patch the skin is reddened and inflamed. Instead of blackened patches the gaugerne may assume the form of alcers limited in extent. These ulcers are circular in shape, with abrupt, elem-rut edges, and their depressed floor is formed of a gray or blackish slough. They may penetrate completely through the skin.

When gangrone attacks a blistered surface the lesion is usually more superficial than in the former case. It appears in the form of a lightish

gray slough, merided here and there with a ciolet tint.

Sometimes the gargone penetrates completely through the skin and subsutaneous tisenes. It may then be found in two forms: a moist and a dry wanety. In the moist form the gargenous patch is black, softened, and infiltrated with a dirty, reddish fluid. Its olour is excessively offenede, and the tisenes affected appear to be completely converted into a putrescent pelp. Often it begins as a small pireple, which changes into a blob containing this parallel matter. As the process continues, more and more skin becomes involved, and a considerable extent of surface may be red, colematous, and buggy to the touch. The centre is usually purple. On this surface blabs form and burst, leaving spots of gaugeons. The sloughs unite, and if the potient service may become limited. The gaugeonous part is then thrown off, leaving the under muscles expected.

When the gangrene assumes the dry form its material characters are similar to those of smile gangrene. MM. Rilliet and Burthez describe a case in which the skin of one leg was completely mortified. On the toes it was shrivelled and blackish. Elsewhere it was transporent, hard, reddish, and elastic like a piece of parchasent. The dried skin was so transporent that the injected venous multiple could be seen ramifying on the under surface, and it had a curious resemblance to the rind of bacon.

In some cases ante-mortem clots have been found in the arteries loading to the affected part; but in not a few cases no embolus is to be found

in the femoral co other arteries of the diseased limb.

A common sext for this spontaneous gaugenee is the vulue in the formule child. Here the gaugene usually begins on the labia, and may spread thence to the intersect the vulue, to the arms and the accrum. The affected parts are dry and blackinholorows, and may slough off, lensing the massless supposed. In male infants the scrotum is sometimes attacked. Often the patches of gaugene are not limited to one region or to one limb, but occur in scattered spots of enrious sizes situated on the legs, the arms, the bactocks, or other parts of the body. The lesions are then often symmetrical, attacking corresponding parts of the surface on the two sides.

Symptoms.—Children the subjects of this tendency to spontaneous mentification are liable to attacks of what has been called "local asphyxia." Some part of the body—nearly a finger, a toe, or the whole of a hand, a foot, or even a limb—becomes excessively painful, and is noticed to be purple in colour. It feels cold to the touch. The tint may deepen to a dull leaden has. After three or four loars, during which the greatest arrioty has been sacited, the pain subsides; the colour of the part grows

lighter and then becomes normal, and the natural warmth returns to the skin. These attacks are sometimes accompanied by severe abdominal pain. Occasionally, too, they are followed by harmaturis of a distinctly intermittent character, the water being normal at some times, red with blood at others. The attacks of local applyxin do not always schalle harmleady. In some cases the symptoms grow slowly worse, and the affected part becomes gaugernous.

Gangreno occurs in two principal forms: disseminated and more or less exponetrical gangrene, and gangrene limited to the extremolies, the

vulca, or the scrotum.

In the discussioned variety the discuss begins in scattered nodules or patches. The strict for some days appears to be unusually drowny, and then, if old enough to speak, complains of pain in some part of the body the thighs, legs, buttocks, or arms—and livid patches make their appearance, which grow rapidly darker in colour. The patches are hard and tough to the touch, and seem to be tender, for pressure elicits signs of suffering. If the patches are few and small, the general health may be little affected; but if they are large or numerous, there may be consting.

bendsche, and general unlaise.

Dr. Southey has reported the case of a little girl, two and half years of age, who had a feverish attack accompanied by purpose spots on the limbs. Six soon recovered, but some nonths afterwards had a second attack which lasted three days. About a fortnight later the child complained of beadache, and said she had burt her legs. The pair was increased by friction of the limbs. In rubbing them it was noticed that the skin on the backs of the calces was land. Soon afterwards the child remited complained of headache, and was feverish. Towards the evening the patches were seen to have extended up and down the calces and to be darker in colour. A similar appearance was noticed at the backs of the arms, and on the following morning the bustocks had become livid.

When admitted into the hospital on the second day the child was more bond. The pulse at the wrist was feeble and somewhat viry, but creld still be counted. The tibial pulse could not be detected. The patches of livelity felt hard and tough. The longs and heart appeared to be quite healthy. Brandy and milk were given, and two doses of nitro-givenns, but all were termined. Intelligence was preserved until evening. Consisions then occurred, and were frequently repeated until the child's death at \$11 cm. The illness altogether lasted only thirty-two hours. A pastmeter combination of the body discovered no course lesion of the vicena, nor could any embolus be detected in the femoral or other arteries of the

left lower limb, which was the only one examined,

Mr. Astley Blocum has kindly communicated to me the particulars of a case of spottaneous gaugenes which was under his care in the Chatted Cress Hospital. The child—a little girl of ten months old—but been along for eight weeks. A small pinciple then appeared on the region of the inferior angle of the scapala. The next day a head formed on the pinciple, and became filled with parallel fluid. When the child was admitted a day or two afterwards (on August 19th) site was seen to be pale and thin, and was said to be wasting. The whole of the scapular region on the right side was colemntons, red, beggy, and hot. In the centre was a puspane patch on inch and a half long by three-quarters of an inch broad, the berders of which were quite purple. On pulpation the patch gave a beggy sensation to the finger, as if from fluid underneath the skin. The temperature on the first evening was 101.8°.

On August 20th the patch had slightly enlarged. Temperature: in the morning, 100.6°, in the evening, 101.2°. Pulse, 96; respirations, 60.

On August 21st the patch was much larger, measuring flares and threequarter inches long by two and one-half inches broad. Some builts had appeared on the surface, and one of these had burst, leaving a small slough. There was no traderness at the gangrenous part; indeed the opposite appeared to be the case, and the part seemed to be unusually devoid of sensibility. Temperatures: in the morning '98'; in the evening, '90.6'. Pulse, 120; respirations, 69. An ammonia and bark mixture was colored, and in the evening the part was well pointed with strong sitric axid. The application caused no pain. Thaty drops of brandy were colored every three hours.

After this the slough did not further increase. On the contrary, it began to separate, and the surrounding orderns to subside. There was a little diarrhora. On August 24th part of the slough came away and exposed the number. The child became very fretful and weak, and died rather sud-

dealy on August 29th.

When the gangrene attacks the entremies, it may be seen in the fingers and toes, or may spread to the hands and feet, or even higher up in the limb. Children so affected are usually pals, under-nourished, and embertic in appearance. After a few days of more or less irritability, loss of appetite, bushache, alcopious, and general unlaise, the patient begins to complain of severe pains in the toes, which may extend for some distance up the legs. At the same time the ends of the toes are noticed to be dull red or purple, and their sensibility is found to be blunted. The pains continue. There may be some fever at night, and in the norming the lividity of the ends of the toes is seen to have extended to the circumference of the nail. At this point the symptoms may subside, the pains becoming moderate, and the lividity fading and disappearing; on on the contrary, the disease may go on to complete spherebus, and extend to the whole of the foot or even of the limb. Thus, François records the case of a child, three years of age, in whem the gaugrene involved the whole of the foot and lower part of the legs.

This form of gangrene may be dry or moist. If the former, it assumes
the characters of scuile gangrene, becoming separated by a line of demarcation, and subsequently detached. Baymand reports the case of a little
girl, aged eight years, of good constitution and healthy appearance, who
began to complain of severe pains in the feet and lower balves of the legs.
At the same time the ends of the tacs were noticed to be blue. The pains
increased and the child was a little feverish. The fourth toe on each feet
became slate-coloured, and the other toes showed spots of firid rest. The
mortified parts were insensible to the touch, but the pains continued and
sure worse at night. The appetite remained good, and there was no diarrices. After a few days the pains ceased, and the gangrenous patches because limited by a well-defined line. In about a fortnight the toes designmated. Dry brown scales became detached, and left the skin beneath them
tinted of a pale violet colour. On the fourth toe of the right foot, the one
which had exhibited the largest patch of gangrene, a black crust was thrown

off, and a supportating surface was left which quickly healed.

A very similar case has been published by Dr. Southey. In this the spots of gangrous were accompanied by subentaneous moltlings of the treak and limbs. These mottlings developed into a raised cash like orythesis interculation. The cruption at first itched, then become tender and poinful, but eventually subsided, leaving merely a discobarration of the skin. Recovery in such cases is sometimes followed by an atmok of puroxyamed hymaturia, in which large quantities of crystals of oxidate of face

are passed with the mine.

In the most gangrose of the extremities the affected part—which is commonly the end of a finger or too—is swollen, and the spidernis is ressell up by red screen effection. As the destruction of the tissues of the part proceeds, the articulation may be laid open. Sometimes most gangrose of the extremities is combined with disseminated spots of a land smaller to those previously described. Thus, MM, Rilliet and Barthez refer to the case of a lattle gar, aged four rears, who was mader the care of Legendre. In this child moist gangrone attacked the ungual phalanges of the right things and middle finger—in the latter laying open the second articulation—and the ungual phalanx of the left forefuger. Moreover, gangronous labbe filled with bloody scrum formed at the back of the shoulder, is the lower part of the donal region, and in other parts of the body. At last a double paramous declared itself, and the whild died on the minth shy from the beginning of the illness.

When the gangrenous process attacks the valva, the lesion is usually seen in a cachectic or weakly child, who has lately passed through an ex-Impating illness. Severe mension occurring in a scrothlous subject is some times followed by this dangerous sequels. As in gangrane of other pure the carliest symptoms are usually loss of appetite, headache, and natura Then the claid complains of severe burning pains in the genitals; and a light red circumscribed patch is seen on one of the labor, often on its interrad aspect. Around it the tissues are dense and swollen for some distance. The patient cries frequently with the pain, and seems to suffer great disfress in pessing her water. After a day or two asles gray spots appear. These are circumscribed and limited by a light red ring. Soon their colour changes to a dark brown or black, and the gaugrene spreads to the region part of the valva, the perincum, and the areas. Often there is a permient, offensive discharge from the discusoil surface. The general symptoms also become more prenounced. The pulse is small and rapid; the features are pinched, and the face is very puls. The child lies meaning in her bed, and complains of pains not only in the diseased parts, but also in the limbs and body. Sometimes a watery distribute course on, and in that case the child soon dies exhausted. If by energetic treatment the gargrazous process can be arrested before it is too late, the sloughs reparale, the swelling and darkness subside, and a granulating surface is left which quickly heals

The gauge nous patch is sometimes single and of limited extent. Other
the case is first seen when the separation has partially occurred and a
shoughy-looking after is found on one of the labor. Still, however small
the local lesion may be, the general symptoms are severe, and on account
of the exhausted state of the patient the danger is very great. At the beginning of the discuss a slight februle movement is sometimes noticed and
the temperature may reach 100° or 101°; but the pyrexis usually quickly
subsides, and the temperature for the remainder of the discuss is below
the level of benith. Death in cases of gaugerne may occur from exhaution. Sometimes it is ushered in by a series of convolute attacks. In Dr.
Gee's case of gaugernous obser of the valva an extensive embalson was

found in the constral arteries.

Dispussion.—The diagnosis of spontaneous pragrams in the child presents little difficulty. The only case in which a mistake is likely to be made is that in which the discuss attacks the extremities of the linguis of

toes. In that case the pricking pain, combined with the livid has of the skin, is suggestive of childrens; and, indeed, according to Raymand, cases of this variety of gaugeens have been often confounded at the beginrang with this common and insignificant disease. In most cases of gaugrans, however, the pains are for more severe, the occurrence of the local symptoms is more abrupt, and several fingers and toes are attacked simultaneously. Moreover, the gaugeenous lesion is often found at a sensor when the common children is not usually suffered from.

Proposes.—In every case of gargrene, whatever part of the surface be attacked, the prognosis is most unfavourable. The patient, indeed, does not always die, but instances of recovery are rare. If the patient be a new-born infant, or a child of weakly constitution, he may be considered to have still fewer chances of passing safely through so formishble an illness. The most favourable cases are those in which the gaugette is of the dry variety and remains limited to a finger or toe. If the pargrenous process appears successively in several parts of the body, little hope of recovery

can be entertained.

Treatment.—In all cases where a cachestic child is attacked with gargrene, every effort should be made to support the strength of the patient,
and improve the state of his notrition. He should be supplied with as
much nourabang food as he can digest. Ment—pounded if necessary, and
strained through a fine sieve—eggs, milk, well cooked vegetables, and a
judicious quantity of farinaccous matter must form his diet. Stimulants
are always required, and the child may take half an cunce of portwine, or
the St. Rapinel tumin wine, diluted with an equal proportion of water,
after each quantity of food.

If the patient be an indust at the breast, we should inquire if the supply of sulk is adequate to his necessities. If the breast milk is poor and insufficient, additional food must be given as directed absorbers (see page 000). White sine whey is very suitable in these cases. Tonics are absorbed to guines can be given in full doses (two grains for a child of three years old, three times a day), or the ammenia and back mixture can be ordered. Mr. Crippe speaks highly of option given frequently in small

Chiera.

In cases of disseminate I most gaugeene the heat of the part should be maintained by hot applications; and directly a slough is noticed on the surface its further extension should be presented by the free application of a powerful excharatio. Strong nitric acid should be applied once thereoughly, and the part must be then kept covered with hot positives. When the slough separates, the resulting some or some can be dressed with a carbolic-acid lotion five drops to the ounce of water), or a solution of horaric acid (twenty grains to the ounce). In all cases of gangrens of the vulta this method of treatment is useful; and the local measures employed in the treatment of gangrenous stomatitie are equally serviceable when the vulca is the part affected. Parrot advocates the use of powder of isoloform, repecially in cases of gaugrene of the valva. The ulcars must be first carefully denied. Then they must be completely filled with the pounder, no part of the raw surface being left uncovered. If the older is very maist, it ought to be dressed twice a day. This method of treatment is painless, and is said to arrest the progress of the alors in three or four slavs. At the same time the surrounding orderen rapidly diminishes.

When the gaugenee is limited to the extremitics, the affected part should be wrapped in cotton wood, and gentle frictions with a piece of farmal muistened with escade-Cologue are recommended by Raymond. This nuthor disapproces of the use of energetic local stimulants, and states that he has seen very disastrous results follow quickly upon under local irritation. Directly a line of demarcation forms, hot dry applications, such as hags of heated from or sand, should be kept applied to the scal of the lesion, so as to preserve the dryness of the tissues and hasten the separation of the sphacelated part. In extensive gauginess amputation has been sometimes performed, but without saving the life of the patient. Indeed MM. Rilliet and Burthez are of opinion that the removal of the discussed member only lastem the fatal termination.

Part 3.

THE DIATHETIC DISEASES.

CHAPTER L

SCROPULA

This scrofnlous disthesis is one of the most common of the morbid types of constitution which we meet with in the child. It is found in all suchs of life, and in almost all parts of the world. It is, however, especially frequent in the temperate sones, being for less common in very cold or in tropical climates. This ties of constitution is often hereditary, and is then handed down with singular persistence from generation to generation. Sometimes, indeed, it is seen to pass over certain members of a family, but even those who escape may not transmit complete immunity to

their offspring.

A child who has the misfortune to be born with this mhappy predisposition is liable to very widespread evidences of the constitutional faciliwith which he is burdened. His skin, his nearous membranes, his hours,
joints, organs of special sense, langs and lymplatic system are all exceptionally sensitive to the ordinary causes of disturbance, and may all or my
of them become the scat of obstinate derangement or even of incurable disense. These manifestations of the constitutional tendency usually take
place surfly, so that acrofula is especially a discuss of childhood. Infants,
mideal, are in great measure exempt from its attacks; but after the third
year it begans to be common, and from that age until the fourteenth or fifteenth year the disthesis is most active. At pulserty its energy sensibly
aliates, and strumous disorders are less and less frequently mat with as the
individual advances towards middle life.

Cassation — One of the most important of the causes of scrotals is increditary influence. When the parents are actually suffering from the cachesia, or have suffered from it, the child is hardly likely to escape a shore in the constitutional predisposition; but when no such manifestation of the tendency has been seen in the father or mother, there is a hope that by careful management and attention to the laws of health the same freedom may be extended to their offspring. But besides actual scrotalors discuss, other debilitating influences in the parents may determine the strumous constitution in their children. Thus, the concerous and tubercular co-

charize will do this. Syphilis in the third generation is spt to married itself by scrofalous disorders; and age in the father, or imperfect nerotice in the mother during her period of postation, are also held to be deterning causes of a congenital tendency to strumous complaints. Whether there nearness of relationship on the part of the parents will energie the same influence is a question which has been often debated, and many writers hold that it can do so. I do not think, however, there is any satisfactory proof that such a result can follow in cases where there is not already a tendency to scrofula in the family.

Besides being hereditary, the disthesis, it is commonly held, may be acquired under conditions favourable to its development. It is true that no frequently see patients who exhibit all the signs of a scrofulous leads without any discoverable family history of scrofulous disease; but it is often difficult to trace out hereditary taints, especially when the transmitted by deary has been mild in its numberations, or has skipped over one or for generations. It is more probable that in each cases latent acrofula is developed by debuilding influences in shildren, who, under more favour

lde rireunstances, would have escaped altogether.

The causes which are thus capable of developing the cachesia in children whose constitutional tendency is comparatively fields, are all the various agents which impair the matrition of the body by weakening dignstion, cherking assimilation, and interfering with the ascape of weste malters from the system. Repeated exposure to cold and damp; an labelunl course and indigestible diet; absence of fresh air, and confinement to cities, ill-restricted rooms; deprivation of smalight and want of exercise -the continued operation of these causes, if it cannot set up the disease where no predisposition exists, has at my rate a powerful influence in exciting the ciclesia in children who have been been the subjects of the disthesis. Even grown up persons exposed to such unhealthy condition are often found to become scrofulous. Therefore emuses which are onshis of reavalening the earliesis in the abilit, after the age most prese to it has passed by, most act with still greater energy in the child. Certain fewers have the power of developing or re-instating the disease in suitahis subjects. Meades and whooping-cough have a wonderful infrance in this respect. Unmodified small pox used frequently to be followed by shstitute scrofulous disorders; and scarlatina can count the some conglishes amongst its sequels. Where the prolisposition is strong, it is probable that my discuss of a lowering tendency may suffice to develop it.

Scrobila, like other complaints, has been said to have been communicated by vaccination; but that the discuss possesses any specific world matter which is capable of being conveyed from one child to another by inscalation is a dectrine which has now been proved to be destitute of any four-

distinct.

Model Justessy.—The structural lesions induced by the scrolulous disthesis consist in turous chronic influentations with their consequences. These layer nothing special in their austomical characters to distinguish them from the same lesions occurring in non-scrofulous children. They

need not, therefore, he further referred to in this place.

The affection of the lynghatic glands, which is so characteristic a partof
the disease, differs from the codinary hyperplasia induced in a builthy shill
by neighbouring inflammation in the fact that the swelling does not subsite
when the irribant which has given rise to it has passed away, but continue
us a chronic condition. In the case of a beatthy child the gland becomes
more vascular, and swells up by an increase in its corporation elements.

These rapidly increase, multiply, and enlarge, and acquire many nucleiwhich fill their interior. This is the first step. In the second, one of two things may take place. If the irritation subsides and cell-production is checked before the nutrition of the gland is interfered with, a fatty degeneration takes place in the new cells which reduces them to a milky fluid. They are then absorbed and the gland resumes its former size. If, on the contrary, the irritation persent, the proliferation of sells continues; they erond together, destroying the reticulum and the capillary natwork of the gland, arrest nutrition by their pressure, and lead to night distategration and supportation. This, then, is an active process conducted rapidly. In the scretulous child the course is much more protracted. The glands are apt to take on a chronic influentatory process. They increase alonly in size, and remain a long time as in bolent Imaps, apparently in equals of furthey change , or, if the swelling have been originally acute, no diminution in size takes place when the inflammatory process is at an end. In either ease the gland is filled with proliferating cells, which by their pressure lander matricion, and induce an imperfect fatty degeneration, so that the gland is conserted either wholly or in part into a mass of cheesy matter.

Ghinds so affected have a spongy feel, unless there is much hypertrophy of the connective tissue, in which case they become hard. Their section is pale red, passing into a dirty white or yellowish colour. After a time the whole giand becomes thick, beigh, anomic-booking, and day, and is then quickly concerned into an equippe, yellow, cased a mass. Decree in the glands is unequally distributed. Some are unabtered, and even of those affected there is great wavely in the degree to which the process extends, for some remain small while others enlarge considerably. After consisting for a long time imetric one of two changes may take place. Either the gland softens, sets up inflammation around, and two-case its contents; or the staid part of the gland is shorted, and the gland dwindles into a filtron mass, or is lumited by the deposition of earthy salts. The cerrical glands often supported; the bronchial glands occusionally do so, but in

the meanderic glands such a termination is very more.

Softening and supportation constitute a shief danger of asseous glands. In the glands of the neck this is of less mement than in these of the closed cavities, for their contents are discharged externally, and are thus removed from the body. Even in these cases secondary consequences may ensue. The existence of a chronic discharging sers, such as often results from the supportain of these glands, is very apt to induce amploid dependention of the liver, kidney, and spicen. Therefore these organs are frequently discussion errorbans children. Besides, there is always danger that softening chease matter may give rise to memphasion of scate tuberculosis; and many scrofulous children fell vectors to this total disorder. In the case of the fremelial and memoratoric glands softening and suppuration are still more serious, on account of the effect upon neighbouring organs. This subject will be referred to afterwards.

Symptoms.—In a well-marked example of the accordance disthesis the constitutional tendency often expresses stoolf in an unanistabable manner in the build and general appearance of the child. He is stood and heavy, and looks as a rule older than his age. The subsatureous fat is assorbly over-developed, and in places remarkably so. His fam is broad and fat, with a thick upper lip, and a wide tase. The limbs are short, with thick order to the bones, and the abdomen is inclined to be large. But although the adipose tis no is raintively increased, there is a want of firmness about the child's fiesh, and his limbs feel soft and dabby. Such children are not

necessarily if-favoured. The general want of delicacy and refinement in the features is often redocated by the large size and dreamy expression of the eye, by the high colour in the cheeks, and by the reduces and fulness

of the line.

Such characteristics are, however, seen only in pronounced cases of the diarhesis, and even then are not always to be found. All the tendencies of the scrofulous constitution may be active in a child without his presenting any such psculiarities of face or figure. Indeed, in assay strunces cases the child is seen to have a spare frame, with delicate features and a thin-transparent skin—a type which conforms more to the inherentar variety all constitution to be afterwards described. But whether he be start and coarsely built, or thin and delicately framed, there is one indication of the diathetic state which is seldous absent in a strunces subject. This is the singular activity of all the epithelial structures. The bair is soft, thick and lavariant; the systashes and cycleous are well marked; and in many cases there is a remarkable development of fine down covering the surgebecks, shoulders, and spine. The skin, moreover, is apt to be rough and scale, and the main grow fast. This pseudiarity marks one of the essential features of the scrofulous disthesis, viz., a touchast to rapid pro-

liferation of all the spathelial and cellular elements of the body.

It has been said that the scredulous disthesis is not in itself a discuss, It is a tendency to disease—a tendency to desargements of structure or of function which finds expression under suitable conditions in a runsty of lesions. All these bear a common character, and vary in gravity according to the tisons or organ affected. The lesions are inflammatory in their nature, and are characterized by rapid cell-growth and rapid decay of the newly formed elements. They are not distinguished by any special matomical characters which stemp them at once as of screenlous origin. In appearance they do not differ from similar demagements occurring in this drea of a healthy habit of body. Their constitutional origin is shown by their telious course, for if not stopped at once they soon pass into a claume state; by their aleggish response to treatment; and by their proneness to relayer when apparently sured. The disturbance originates under the influonce of some triffing and temporarily exciting cause; and the length of its course is often dependent upon the hygienic conditions surrounding the child at the time of the attack. If these are satisfactory, the derangement may be quickly recovered from, although it readily recurs when a similar cause is again in operation. If they are unsatisfactory, as is smally the case amongst the poor, the derangement becomes a chronic disorder, and increases in severity and obstinacy as the days go by.

The parts which are prone to suffer in this dislikes are: the moves nemberoes, the skin, the bones and joints, the organs of special seas, and above all the lymphatic glands. In whatever tissue the lesion is scated, the neighbouring lymphatic glands are liable to enfler; and this is a fact so generally recognized that amongst the public the term = scrobiais understood to mean simply a chronic enlargement, with tendency to

supposention, of the glands.

The nuncous membranes in all strumous children are sepecially smaller and subject to cutarrh. Gestric and intestinal cutarrhs are very consect; and we find besides, coryan, ophthalmia, estarrhs of the threat, our and air-passages, and in girls of the vulva. All these, beginning as enumbs, pass quickly into chronic inflammations very difficult of curs.

The affections of the gastric and intentinal muccous membranes will be considered in another place. They do not differ from the same decampments as they execut in healthy subjects except in the fact—and it is a very important ope—that in scredulous children such catarries are always accompanied by facer. This is soldons the case with healthy children. It provides be present with a simple gastric catarrie, it affects a strong presemption that the petient is of a scrofulous constitution. Catarries of the intestine in those children often act up alteration of the nations mean-brane. This is an obstitute become and may lead to exists consequences (see Ulcoration of the Berecks).

Catarrhs of the mosal possages leading to onema, and even destruction of bone, may be seen. Obstinate discharge from the nose in a haby is generally of syphilitic origin; in a child of two and a half years and upsurds it is much more commonly due to the scrofnlows cachesis. It is very obstinate, gives rise to a distressing and perhaps unavoidable liabit of smalling, imports a nasal character to the vocce, and leads to consisting

and commutes of the upper lip.

The cyclids and eyes may be affected with times tarsi, postular ophthal-

mia, and accasitie, with intense lachrymation and photophobia.

Pharyageal enturie is a very common affection. It is also a very important one, for it is accompanied by some enlargement of the bossils, and considerable aveiling and thickening of the posterior nares and back of the faces. Consequently there is occlusion of the Eustachian tubes and deafness. On importing the back of the faces in such cases we find the minous membrane of a deep red colour. It is swollen and velocity, and is covered with a thick mino-parallel secretion. The closure of the Eustachian tube is not the to enlargement of the torsils, but to the swelling of the minous membrane. Children so affected present a peculiar appearance. They have a vicinit lock, bold their months half open, and, bearing but imperfectly what is said to them, he state and are confused when spoken to. They are not really wanting in intelligence, but on account of their deafness appear to be so. On examination of the cur the trupmount is seen to be drawn in, but it retains its translucency, and there is no limitality.

Otombou is very often met with in exceptions children from estarrial inflamention of the menter. The inflamention may spread to the inner car, in which case perforation of the membrane always takes place. Severe primary editio may also occur as a result of cold or injury, or as a sequence of scarlatina, menules, and email-pox.

Fulmously enturits in strumous subjects may become chronic and give rise to winter cough, with emphyseum of the lungs and persistent hypersecretion; or the outsirb may spread to the air-cells, induring chronic

exturbal passimonia with all its possible consequences.

Various skin affections occur in subjects of this disthesis, and are generally the earliest manifestation of the constitutional tendency. Acute commas are common, and slight depressing course may give rise to an outbreak of impetiginous or esthymatous pushales. Little scratches are upt to run into deshering screes which may be alow to beal. Occasionally we find supply pemphigus, or inpus, but these are rare in childhood. A not uncommon form of affection of the skin is seen in babbes and children under two years of age. This begins as a small hungs—hard, painless, and of the size of a pea or a small purt. It is sented in the subscretaneous tissue, and the skin over it is at first freely morable and is natural in colour-finalizally an adhesion forms between the little mass and the integrament. The skin gets well and after a variable time gives way, and the choosy contents of the abscess are commuted wholly or in part. After discharging

for a longer or shorter period, the says heals; its hard two becomes the sorbed; and a deep rientrix is left at the site of the absence. Several of these absences are usually seen at the same fine in various stages of progress. They are sented on the arms, legs, or abdominal wall, and man protracted course, passing very slowly through their several stages. They seldom occur except in children of pronounced strumous tendencies. When sented on pure where the skin is in close contact with the bone, as on the fingers, periodistic may be set up with exfoliation of hone; let

elsewhere they have no injurious local consequences.

Discour of the house and joints is a very common consequence of the screfulous disthesis. These affections enter more particularly into the dispartment of the surgeon. Still, there is one form of home discuss which is brought so frequently under the notice of the physicism that it may be properly considered in connection with this subject. This is carries of the bodies of the vertebre, in its early stage. before it has led to curvature of the spins. The remon why we so often see such cases is that the parwhich is one of the cariiust symptoms of the malady, way, by its sent mal by the comp-like character it sometimes assumes, give little indication of its being generated in the spins. Like the pain of plearies, the pain of ventebral caries is often referred to a region far distant from the sent of the disease. When the stias and axis are affected, the pain is referred to the occipital region. In the case of the lower cervical vertebrae, it is felt in the shoulders, down the same, or even in the upper part of the breastlene. If the earlies occupy the dorsal spine, the only discomfort complained of may be in the sides of the thorux, the middle line of the elect in front, or the epigratrium. In disease of the humber vertebes: the pain is reducted to the polyie, or to the lower limbs as far as the kneen, or even to the feet But wherever the pain is felt, and whotever may be its degree of accenty. its cause may usually be distinguished by noting the increase to the child's discomfort when he moves about, and the relief he experiences when he lies down. Sometimes, however, slow muticus movement may be made without uncosiness; for if the spine by braced up and shealied by the enrounding mandes, the patient may be able to move carefully about withcut communicating any jur to the certebral segments. But a oversett when the child is taken at a disadvantage, with the spiral numbers related. is always distressing, and therefore it is important to imprire as to the effect of coughing meeting, riding in a currage, or making a false step in walking.

Besides pain, another important indication is obtained by noticing the degree of mobility retained by the spiral segments. The shill holds his back stiffly, and avoids all movements which necessition tending of the spine. Thus, when hid down on his back and told to get up, he does no by turning slowly upon his hards and knees, keeping his tack straight, and then getting carefully on to his feet. If required to pick up a small article from the floor, he turns sideways to the object and lowers and miss knowled by bending and straightening his known, keeping the spine straight and almost erect. Movements such as these are of great calm, and is doubtful cases the child should be put through a sense of convises, as as to test thereughly the mobility of his vertebral column. He should be required to turn round quickly as he walks, to climb a chair, or to touch his

toes with outstretched fingers while his knees are straight.

Another important symptom is the attitude assumed by the putiest when at sest. If there he much disease of the bones, the child sill stdeavour to rehere the spine by supporting his head or diverting the weight of the body from his back to his arms. Thus the favourite attitude of a child whose cervical vertebre are affected is to sit with his elbows on the table supporting his head with his hands. In other cases of the disease the weight of the body is transmitted through the arms. Mr. Howard Marsh, who has devoted much attention to this subject, describes two characteristic attitudes assumed by a child the subject of caries of the dorsal and lumbar spines. In one of these he places the palms of his bands on a chair, and leans over forwards with his arms straight and choulders raised. By this means weight is taken off the spine and trummitted through the arms. Another position is equally characteristic. The child rests his weight on one too, with the heat slightly raised and the kneet densel, and placing his hand on the middle of the thigh, leans over, so as to convey weight from the shoulder down the arm to the limb.

Attention to the above points will give very valuable information. Other symptoms are less trustworthy. Thus tenderness on pressure over the spines of the diseased vertebra is sometimes present; but it is not characteristic of cames. Striking with the knockles down the centre of the back is a very fullacious test. In cases of undoubted caries there may be no response; and a child may shrink when the spine is tapped even though the boxes are sound. In the same way the application of a hot sponge to the spine as a test of tenderness is unsatisfactory, and in the

case of a child little information is to be gained by this means.

Whenever spiral earlies is suspected we should never forget to look for ilise or poors abscess; for in cases where the alcoration is limited to the surface of the bodies of the vertebras, an abscess may form before any

curvature can be detected in the spins.

Charries of Ghads. One of the most familiar consequences of the accordatous disthesis is a chrosic enlargement of the lymphatic glands. In all young subjects these glands are imble to enlarge upon slight irritation ; but in a healthy constitution the swelling subsides when the cause which gave rise to it has passed away. In the child of aerofulous tendencies the came existing the mertad process may be so feeble and transient as to escape notice. But, the unhealthy action once act up runs a protracted course, and the enlargement continues until some further change takes place which couses it to disappear. The steps by which the affected gland becomes converted into a cheery mass have already been described. The process is a purely local one, and does not necessarily produce any illeffect upon the patient. It is evidence, no doubt, of a constitutional tendency, and as such may excite apprelicusions of other and more formulable manifestations of the distlatic state. Of itself, however, unless the swollen glands be so situated as to press injuriously upon parts in the neighbourhood, so to threaten by setting up inflammation around to injure a vital organ, it is soldom attended with danger.

The glands most commonly affected are the cervical, the broachial and

the meanteric.

Chronic enlargement of the cervical glands is excessively common, on account of the many scrothless lesions to which the head and face are liable. But these lesions do not all not with equal energy in promoting the glandslar swelling. Inflammation of the pharyngoal uncous membrane is found to produce this result far more frequently and readily than an irritant occupying any other part of the best and face. A skin affection may exist for a long time without cossing enlargement of the glands but a pharyngitis causes them to enlarge very quickly. Chronic glandslar swellings are seen as round or oval masses, firm to the touch, and usually fively morable. The skin over them retains its normal colour and is not solbstrent. They are generally to be seen behind the ear, beneath the lower jaw, and succeimes extending down the neek to the collar bone. The misses true be formed of single glands; but more often several of these units and are bound together by thickened and condensed collade tasses. Such aveilings may reach the size of a small apple. Usually, after a time, tenderness begins to be noticed; the skin becomes afternit and red; flectuation is felt; and eventually the abovess lums's and discharges its contents externally. Secondaria abovesses are slow to heat Often a discharging cavity is left from which a thin pur escapes; or the opening enlarges, and we see a singuish above with the kened undersaised edges. In bad cases several of these may be seen at the same time it such aske of the neck.

Enlarged cervical glands do not always supported. Sometimes, offer remaining a variable time as a chain of indefent swellings, they begin gradually to diminish in sac and return alowly to their normal dimensions

Casestion of the bronchial glands is little less common than the same condition in those of the neck. The effect, however, of such disease a tory different. Swelling of the superficial glands of the neck, although unsightly enough, is yet in itself a complaint of comparatively little moment. But when the glands of the mediastinum become enlarged the consequences may be serious. The glands are sented at the bifurcation of the trackes, behind the upper bone of the stemmen, and a little below it. They also accompany the bronchi into the interior of the lung. When swellen, they must therefore encrosely upon reighbouring parts, and may produce considerable disturbance by pressing upon the bicodevessels, the sur-pressures, and the nerves of the class.

Before describing the symptoms produced by this means, it may be remarked that colorgement of the bronchial glands does not necessarily imply the existence of chronic lung discuss. A child is not to be considered consumptive because his mediastical glands are higger than they ought to be. The term "broughted phthisis," which has been applied to this condition, is very modesding, and was given at a time when all thronge clusters in the plands were attributed to tubercle. Scrolnion children, who are so prope to suffer from pulmonary entarrie, will generally he found, on careful examination, to have some swellings of the glands behind the sternum; but if no dulness or broughial breathing can be detected over either lung, we have no reason to infer the existence of pulmotury disease. Like the same affection in the neck, chication of the glands below the tracken is often a purely local process, induced in a scrotnloss child by some passing irritation. It is more serious than a similar condition in other parts only because the glands are abut up in a clated cavity, in the immediate neighbourhood of large result and vital organs, which may be affected injuriously by their pressure, or by pathological changes occurring in them.

It is possible that the bronchial glaude may be, as most authorize hold, occasionally the sent of tubercle, although arguments in favour of this view, drawn reclusively from morbid anatomy, are of only according value. For there is little doubt that the ordinary form of glanduler enlargement is due to a very different same. It is true that civilers who suffer from this form of scrofula are frequently feverish, and that they are often thin and under-nourished; but these phenomena are not necessarily the result of tubercle. It will be generally found that the pyraxis is not a constant feature in the case. It occurs now and main, the child's have perature in the interval being normal and lasts on each occasion for a week or ten shays. While the feverishness continues, the child is languid and mopes, cats little or nothing, and is generally troubled with cough-The explanation is that a child suffering from this exchemia is excessively sensitive to changes of temperature and readily takes cool. While the enturch lasts be is fewerish; and as all the noncons membranes are equally sensitive, the stomach sympathizes in the general densigement. For the time, then, autrition is in abeyance, and he loses field. Even when the attack is at an end, and appetite returns, the stomach does not all at once recover its power. The patient's digestion continues weak and current fully satisfy the requirements of his system, so that he regains flesh but slowly. If the cutures recur at short intervals, the child is kept thin and weak; but he is not therefore tubercular, and if he die, he dies would from a simple bronchitis or pneumonia, and not from any tahercular conplaint. But such children, if in a position to receive all the care they respare, seklour do die. In my experience such a termination is rare in comwhere the lungs are unaffected. When due precontions are taken, they often become fut and strong, and the signs of glandular enlargement disаррени.

In many cases the disease is the glands is associated with palmetrary pathties; but this is more often than not of the non-inherentar variety. When death takes place in such cases it results from the lang disease, and the glandstor avoiding contributes little, if at all, to the fatal issue. Death however, does senetimes occur as a consequence of the scrotulous swelling. The mass may cause such disturbance by pressure upon neighbouring parts that inflammation and ulceration are set up, and the child sinks from exhaustion. Thus the acceptague or an air-tube may be perfected, as in a case published by Dr. Gee, without any softening having occurred in the gland. In other cases the gland softem and becomes converted into a mass of pass. Here there is bectto fover, general and persistent wasting, and loss of strength. Eventually the absence discharges itself into the pleanal sority into a bronchus, or into a large vessel, asseing faced become faing. A common termination when softening takes place in the gland is by sente tuberculosis. This, however, may occur in the case of any other softening cheery mass wherever situated. It is no proof that the gland

was originally the sent of tuberds.

The special symptoms produced by enlargement of the mediactical glands are the consequence of pressure—the glands by their unwooded size

cucroaching upon the parts around.

Pressure upon the superior rema cara, or either innommate tein, interferes with the return of blood to the heart. There is a certain degree of lividity of the face, the akin around the mouth has a blaish that, and the lips look puffy and dark. The superficial wins also are unusually tierble in the truptes, the neek, and over the front of the chest and shoulders. A small amount of pressure is sufficient in children to cause difficulties of the venous radicles of the chest, and the symptom is one of the sufficient indications that the bounded glands are larger than they ought to be. If there he great obstruction to the return of blood from the head, column of the face and puffiness of the cyclids may be seen; and this, when one immunicate vein only is pressed upon as limited to one side of the face. On account of the congestion of the remore system, specials is common and hancorrhage may even occur from the langs. But hamoplyses in children is difficult to detect, for blood country up from the mouth is most invariably availowed, while a discharge of blood from the mouth is

nearly the consequence of epistaxis, the blood sucrping backwards into

the threat from the posterior zares.

Pressure on the person of the chest causes hourseness of the soice and paroxymal cough which may be mistaken for whoeping-cough. It occurs in violent fits, and sometimes ends in a crowing inspiration. It is low, ever, soldism followed by somiting. When the pressure affects also the lower end of the trackes at its bifurcation there may be, in addition, attacks of dysprova. These are the ordinary "asthuntic attacks" of young children. Sometimes bryagenl spasm is induced, and long-continued spann may to interfere with the entrance of air into the lungs that the antero-postering diameter of the chest becomes diminished, the weight of the atmosphere forcing the sternum buckwards below the level of the ribs. All those presure symptoms become greatly aggravated by an attack of pulnimary catarris. In ordinary cases somere symptoms are only seen when the child catches coal. If this happen, the condition of the patient becames always ing. His face is livid; his dyspaces distressing; his rain house; his cough violent and spacemedic. Even then the attack is often not continuous. It occurs in sudden sciences which come on once, or more often in the day, or only at night. The attacks last a variable time and cruts much alarm. In most instances their violence abates after a few does, and in the coarse of a week or so the child seems restored to his redinary health, although he is left languist and more feeble than before his illness. In other cases the symptoms increase in severity instead of discipling. The child starts up waldenly in his bed with storing eyes and a desky, frightened face; his respiratory muscles work violently, and his egilation and distress are painful to see. After several repetitions of these attacks death may take place either suddenly, or after a fit of convulsions.

The physical signs affected by examination of the chest are of impotance. In marked cases we find dedness on the first bone of the stream. which may extend for some distance on each side and below. Sometimes it is found to reach as for downwards as the lass of the heart. Three never succeeded in detecting any disluess in the back between the sequin-Indeed, the results of percussion even in front are often midealing. These tray be very considerable and extensive discuss in the glands and mless the mass is in artual contact with the wall of the chest no duluess may be discovered at the spot. The signs afforded by the stethoscope are reach tion trustworthy. Presonre upon the lower part of the tracken postures a requiratory strider which is sometimes so lead as to be board at a distance from the chest. It is generally intermittent. In either broaches worked pressure may interfere with the entrance of mr into the corresponding long and lead to a certain amount of collapse at the bess. Pressure such as this however, is exceptional and is only seen in cases where the enlargement it great. The most common assemblatory sign connected with the beedlerg is produced by conduction the glands forming an artificial medium of communication by which sound is conveyed from the nir-tules to the riest wall. This gives to the breathing a load blowing character which is very characteristic. It is less high patched and notallie than the ordinary blosing and cavernous breathing heard in cases of pulmonary consolidation stall convention; and is most marked at the spices of the Img, especially at the super-spinous fower. Semetimes it is bested loudly over the whole of our or both sides of the class. Opening the mouth generally medities outsil embly the intensity of this blowing quality, and may even make it re-

altogother.

Pressure upon the descending reas own or the left innominate will

gives rise to a hum, and on the pulmonary artery to a systolic number. heard best at the second left interspace. But long before the certinary signs of pressure on the vessels can be detected, we can induce pressure on the coin if the broachtal glands are enlarged. This sign is one of the earliest melicutions of disease in these glands. Thus, if the child be directed to bend his band backwards upon his shoulders so that his face is turned upwards to the reiling above him, a vouces hum, which varies in intensity according to the size and position of the swollen glands, may be beard with the stethoscope placed upon the upper bone of the sterners. As the chin is slowly depressed again the hum becomes less distinctly audihis, and --- shortly before the head reaches its ordinary position. The explanation of this phenomenon appears to be that the refraction of the head tilts forward the lower end of the tracion. This curies with it the glands being in its bifurcation, and the left innuminate rein is compressed where it passes behind the first bone of the steraum. I believe this explanation to be the correct one, for in cases of merely flat chest, where there is no reason to suspect unlargement of the glands, the experiment fails. Nor, again, can the from be produced in a healthy child by the thermus gland. This gland lies in front of the vein intracliately behind the sternam. Enlarged broughtal glands he behind the vessels in the bifureation of the truckes. A swelling in front of the vessels does not appear to be able to not up pressure upon the win when the head is bent backwards in the position described. Again, in order that the experiment should succeed, the lower and of the tracker must not be fixed, and the glouds lying below its bifurcation must be movable, otherwise no hum is beard when the head is retracted. Thus a shiel was admitted into the East London Children's Hospital for languadenoms. There was dalness at the upper part of the sternam and downwards as far as the base of the beart. In this case, to my great surprise, no venous hum could be heard. The child died, and on examination of the body, rellow, flattened, cheesy masses were found adherent to the inner side of the sternum, and others, very large and immorable, were seen filling up the interval between the bifurcations of the tracism. The lower end of the sir-tube was held family down by the mass, consequently pressure could not be brought to bear upon the vein by bending of the head, as the glands, being fixed, could not be brought forwards against the word. The experiment may sometimes full even in cases where the lower and of the trackes with its caseous glands is free to more, for the relative position of the glands and the win may not correspond; but as a rule it will succeed, and a venous hou, so induced, is, I believe, a certain sign that the dands of the mediastinum are not healthy.

The secondaric glunds are, perhaps, less commonly affected than those
of the nock or the chest; but disease in them is far from rure, although it
cannot always be detected during life. The affected glands may be separule, or they may units as in other situations into masses bound together
by thirdenest collular tissue. In this way a mass the size of an apple, and
more or less anomable may be felt on manipulation of the abdomen.

The old name for disease of the mesenteric glands was taken accestation, and very serious consequences were described as resulting from the glandular collegement. It is now known that these symptoms are date, not to the mesenteric swellings, but to the lesion of which they are the consequence; and that the enseons glands form a part—and often only a very

See a paper by the writes, " On the Early Diagnosis of Enlarged Resochal Grands "
Lancet, August 14, 1879.

insignificant part-of the disease from which the patient is suffering. Like the lymphatic glands in other situations, those of the mescatery swell up as a result of irritation or inflammation in the parts from which the braphatic cessels passing through them take their origin. In strumous seleects they have the same prosessess as the others to become ensure. Of themselves they form a strong argument against the tuberculus theory of scrobious ghardular calargement; for cascation of the messateric glasts, unless their size be such that they press upon neighbouring parts is in melf a by no means serious matter. In colinary cases, where there a no accompanying lemon of the bowels, the child's notrition is good; has spirits and appoints are satisfactory; has temperature as normal; and excopt, perhaps, for some alight paller of face, he may show no sign of the health. In most cases, however, swelling of the glands, if at all considerable, is combined with scrofulous ulcaration of the bowels; but even here the consequences are not always as serious as might be expected. Mach depends upon whether or not the ulcoration of the intestine is accompanied by a catarylal condition of the mucous membrane. If this by greent, there is diarrhan with marked disturbance of nutration. The child prope thinner, poler, and weaker; his expression is distressed; he sleeps hade at night, often asking for think, and is disturbed by wastering abdustind prins. The temperature may rise slightly in the avening, but there is soldon marked syream

If there be no intestiral catarris, the bowels may be confined, and the effect upon the child's general health is much less pronounced. He still looks ill, is troubled by flatulent pains, and is pale and weakly, but retrition may be fairly performed, and the child may even appear stock although to the touch his limbs feel soft and flatby (see Uncertain of

Bowelst.

When cascatton of the glambe is associated with tubercular personate

—and it is to this combination that all old descriptions of tubes meantering
apply—the symptoms are those of the personnel disease, and the case is a

very heriotis one.

Scrofnlous measureric glands are not always easy to detect. The belly is so often distended in children, with flatulant accumulations, that it may be difficult to force the parieties sufficiently inwards to reach the swelin bedies. Moreover, a certain tension of the abdominal well, were or less robustry, may still further increase the difficulty. The enlarged glands lie about the middle of the abdominal wall directly inwards will assembly detect the exciling at once. In cases where the increase in one of the glands is inconsiderable, it is better to make pressure laterally, bringing the hands together from the sides towards the centre, so us to catch the little mass between the flaggers.

If the glands are large strengh to press upon the parts around, there may be ordered of the legs and scretner from pressure upon the vern over. This, however, is exceptional. A very small amount of pressure will be enflicient to cause dilatation of the superficial versa of the abdominal wall, and most cases of enlarged meantered glands are accompanied by this phenomenon. Cramps in the legs are said to be sometimes caused by pressure upon the nerves of the abdomen; and meiter may be the oursepasses of pressure upon the portal usin by the glands occupying the

hapatic notch.

The usual termination of scrolulous glands in the abdonum is that by storicking and potentiaction. They must soften although cases are recorded in which suppursting glands have become although to a cod of

intestine and have discharged their contents into the bowel.

From the preceding description it will be seen that the phenomena produced by the development of the seminious cacheau are very numerous. The manifestations of the disthesis must therefore vary greatly in different cases, the constitutional tendency expressing itself now in one way, new in another; for in addition to the general predisposition, the child seems also to inherit a special weakness of particular tissues. Thus, in confamily we see child offer child suffer from seminous information of the tyo; in another there is equal susceptibility of the pharyngeal or the must necessary membranes; in a third we detect a special pronounce to discuss of the house or of the joints. All these disorders are apt to run a tellique course and to resist treatment with singular obstimey. They can only be attacked successfully by using means which improve nutrition, and weaken the morbid tendency on which the beion depends. Until this be done mere local applications will be of small value.

Dispension.—It has been said that acrofulous lesions have no special characters which indicate their constitutional origin. Their real nature must therefore be inferred from their linguing course, their tendency to verse, the frequent absence of any discoverable local cause to account for them, and the cognistence of other disorders of a like nature, espe-

cially of glandular enlargements.

The subcutaneous abscesses may be, and often are, mistaken for apptilitic gummata. They must be distinguished by the history of the case,

noting the complete absence from it of my apphilitic symptoms.

The diagnosis of the early stage of spinal caries has been already indienfed in the description of that disease. Remembering how the pain radistes in this affection to distant parts, we should always look with suspicion upon pain to the chest or stourch in a child of scrofulous tendencies until the spine has been tested for the effort of sudden jure or shocks, and the child's attitudes as he walks or plays have been inquired into. Persistent pain in the occipital region, if combined with any stiffness in the neck or any altered manner of holding the head, is always suspicious of enrics of the reryical vortebras. Pain in the chest or stomath, unaffected by foul but increased by movement and relieved by lying down, is highly suggestire of dorsal caries. In all cases where spinal discuse is suspected the child should be made to more himself from a recumbent position, to pick tip a small object from the floor, or to climb on to a chair or table, and his saumer of performing those nots should be carefully observed noting the degree of movability of the spine, and whether any part of it is held rigid

In the case of enlarged glands we may consider that a gland has become obsery if it have enlarged without evident cause, and if it persist for a long time as a paintees indefent turnour showing no tembercy to subside,

Counties of the bronchial glands may be detected in their early stage by the experiment of listening over the upper bone of the sternam while the child's head is retracted, as already described. Dulness at the upper part of the sternam, if combined with any sign of pressure, is very suspirious, especially if there be foliases of the superficial wins of the neek, side of the head, and temples. Spacer-dic breathing and purcoystal cough are also characteristic symptoms—the more so if they are combined with any altered quality of voca. In all cases where children have attacks of socalled "astlinas," attention should be always directed to the bronchial closels (see page 182). In the case of the recenteric glands the only satisfactory proof of their enlargement is holding them between the fragers. Even in these cases between, we have to satisfy conscious that the substance is really a giand and not a cheesy mass attached to the ensembles, or a lump of hardened force. Cheesy constall masses are much more superficial, and consequently more easily felt their calarged glands. They are also note freely more ble. In feeling for mescuteric glands the fingers have to be present down fronly towards the spine, and the glands, if anlarged, can be detected.

as slightly morable lumps with ill-defined margin.

The sensation conveyed to the fingers by facul masses is very different to that furnished by enlarged glands. Facul accumulations can be realily studied in mass of typical fever where there is no distribut, and the studies taking milk. Here we find clongated masses of moderate size lying with their long axes in the direction of the borel, and situated at some point in the course of the colon. They are never very deeply placed, and can be always realily reached by slight depression of the abdominal wall. By firm pressure they can be indented by the finger. If any doubt is full in such a case, the effect of a copious scenar should be tried. Fouril masses are realily removed by this means; while lumps due to any other came are only made more evident by the injection; for this by removing gateons distention and freed matters, renders a full exploration of the abdominal cavity more easy than before.

Proposac.—It is the exception for scrofulous children to die from the direct effects of the disease. In fatal cases death usually results from scute inherentosis; the outbreak of the tubercular makely being determined by some mysterious process of infection through softening sheep matter or alouly alcerating bone. Again, children the subjects of this diathesis are more sensitive to the ordinary causes of disease. They catch cold very readily, and therefore are upt to suffer from various chest affections. These, besides their own special dangers, may lead to sell consquences by causing enlargement and casention of the broadist glands. Purcuscosia, again, has a risk of its own in its proposalty to undergo only

partial absorption, and so to induce chronic changes in the lung.

Serofulous children are singularly susceptible to the influence of contagion. Few such children exposed to the infective principle of synoticalscase will be found to escape, unless protected by a previous attack. Such discuses, too, have a special power-of intensifying the disthict trint. They leave the child not only depressed by his late illness, but also more exposed than before to suffer from the consequences of his constitutional weakness.

Ethinged brouchial glands, if sufficiently advanced to cause serious pressure upon parts around, must always occasion anxiety. If there be bindity of face or attacks of dispense, a very guarded prognosis should be given. Still, when phood under farourable conditions such children often do well.

Enlarged mesenteric glands, if nunccompanied by alcomation of lowels or signs of intercular peritonitis, are in themselves of little importance. If signs of intestinal alcoration be present, the case is more serious, and the prognosis depends upon the amount of diarrham, the presence of dissum in other organs, and the effect of the lesion upon the nutrition of the patient. This subject is considered in another place (see page 865)

Amyloid disease of organs set up by chronic supportation is of mount, as tending to induce anomia and lower the strength. Still, in childhood, if the primary supportation be arrested and the scredulous disease removed, the amyloid degeneration often undergoes a surprising improvement (see

"Anyloid Liver").

Trentesest.—The constitutional tendency to scrofulous lesions is best attacked by measures which encourage and mointain healthy nutrition. The causes which excite the dormant cachecis have been stated to be exposure to cold and damp, insufficient and unsuitable food, impure air, and want of exercise. It is therefore evident that a careful regulation of the diet, consisted with warm clothing and daily exercise in the open air, must

be the first measures to be adopted.

With regard to food, the cital should be fed liberally; mest, fresh eggs, and milk should enter largely into his diet, and his stomach should not be overloaded with puddings and starchy matters to the exclusion of more strictly nourishing articles of fool. Fresh vegetables are a valuable addition to his dietary, but potatos unust be given with caution, although they are not to be entirely excluded. If the appetite he poor, a small amount of stimulant is often of service, and the child should be allowed a good wineglassful of sound cluret diluted with an equal quantity of water to his dinner. It is needless to my that cakes and sweetments between meals must be strictly forbidden. In the case of infinite burn of scrofulous parents, a healthy wet-nurse should be provided if the mother be unable to suckle her shifd. If this be impossible, the atmost vigilance must be exercised in the feeding and general management of the baby. Directions are given elsowhere for the healthy rearing of infants, and the reader in referred to the chapter on "Infantile Atrophy" for fuller information upon this important subject.

Climate is a matter of great assessed for children who are, or are likely
to be, the subjects of scrofuls. A bracing air is indispensable to the succosoful treatment of these cases. Residence in low-lying clay soils does
much to encourage the predisposition, while sandy or gravelly places, with
a dry air, are of the greatest benefit in increasing the victor of the constitution. On account of the tendency to extarries in this disthesis, a dry air
is of especial importance; and a place which is sufficiently warm during
the winter months to allow of the patient passing a large part of his timout of doors is of the atmost scroke. Large towns, with their smoke and
withinted air, are but residences for scrotulous children. When compelled
to live in cities, care should be taken that the shift is warmly clothed and
sent out as much as possible for exercise in the large open spaces with
which most towns are now provided. For children of both sense bendity
out-of-door games should be encouraged; and they should be cody trained
in suitable greatestic exercises, such as develop the muscles and expand

the chest.

The skin should be kept perfectly clean by a daily both, but cold denotes are often too depressing for such subjects, unless suployed according to the plan recommended for delicate children (see Introduction). The horsels must be attended to, and Indets should be inculested of regularity in the use of the close-stool. When apendents are required drastic purgatives should be avoided. It is better to employ mildly acting drugs, such as the compound biquories powder, or to combine an apencent with a tenic, as in giving the infusion of seams with the infusion of grutian or orange-peed.

In treating children in whom the carbenia has become developed, the above matters must be carefully attended to. Great stress should be hid upon the value of a suitable climate is adding the child's recovery of localtiif possible, the patient should be sent to winter in a dry air sheltered from cold winds. There, dressed from head to foot in warm, woollen clothing, he should spend the greater part of his time out of doors. Condition oil is

usually prescribed indiscriminately in these cases, and while some clathics. appear to be greatly benefited by the prescription, others seem almost insensible to its effects. It may be laid down as a rule that the stout scroin four children are not the best subjects for coaldiser oil. It is the spare framed shald with an active, nervous system who derives most beautit from the use of the drug. The cell should be given in does of one temporals two or three times a day, and its use must be continued for months to gether. If the child appear to be nauscated by this constant doing the oil may be rematical for a few days at a time, but must be shortly resumed. On the Continent much value is attached to accern coffee, made by mosting together a mixture of access and coffee beans and grinding then in the usual manner. This coffee is generally given as an adjunct to the oil. 2: is reperfully recommended in cases where there exists a chronic catara of the bowsla. Cold bothing, when employed with proper precautions to us duce a healthy reaction, is of tast importance in the treatment of may cases of seredula. Those premutions are described closwhere (see Intraduction). Cold dourhing is most useful in the rass of stout children-these who derive little benefit from codding oil.

For calarged scrofulous glands, besides the above general treatment, to line combined with iron is very useful. I am in the habit of prescribing nodule of personnel with the torrows of iron and glycerine, as in the fol-

lowing misture:

B. Potas, india	di	 *********	********	雪沙
Aireatti 1941	******	 	********	2.15

M. Pt. Mistana. An eighth part to be taken three times in the day.

The indide should be given in fair doses. The above is suitable to a child of free years of age, and is better than the onlinnry symp of the indide of iron, the sugar of which is so frequently found to disagree. Some practitioners prefer the examinon tirefture of indide, given in doses of three or four drops freely diluted with water.

Violent attacks of dyspaces from pressure of cularged glands upon the acress of the about are best treated at the time by strong counter-irritaria. After the attack has subsided gentler counter irritation may be continued. I have thought benefit has been derived from the careful and continued.

use of the indine liminest to the frest of the elect.

Enlarged carried glands are sometimes reduced by rabbing into them
twice a day the cadmium obstance of the British Pharmacepoin diluted
with an equal quantity of land. The cleate of mercury salve is also of servise. This application should be used of the strength of five per cent. It
must be smarred on the part, not rubbed in. It can be used twice a detise the first five days; then at night only, and afterwards every other day.
When the gland supportes it should be opened with as little delay as
possible, in order to avoid unnecessary scarring of the skin. It is inportiant, however, to anticipate the supportative process, if possible, indavoid the shargers of a chronic discharging now. Therefore if the necessary adopted to cone absorption are seen to exert lattle influence upon the
size of the swelling, it is advisable to call in the aid of the surgeon. Dr.
Chiford Albort strongly advocates free incision and emcelention of the
caseous matter; and Mr. Trale states that he has successfully treated
many such cases by scooping out the cheesy contents of the gland, merfy
leaving the normal portions with the enclosing caponic.

If softening has taken place and the abusess formed continues to discharge and often resultance, the nightly administration of a proofer containing one grain of hydrargyrum sum creta to eight grains of perceide of iron is often attended with surprising benefit. This powder should not be given longer than for a week at a take. The sulphate of calcium in does of one-fifth of a grain, given every two or three hours, is also recommended. This, however, is a very magertain remedy. Sometimes it subsects, but more often it fails completely. The chloride of calcium in does of two grains every four hours is sometimes successful. An important point in the treatment of enlarged certical glands is warrath. During the whole time that local applications are being used the swellings should be carefully perfected from the cold. A good plan is to cover them with a thirk pad of cotton-wood.

Lugol has spoken highly of iodine in all forms of scrofulous lesions. He used the drug as a selve to the scrollings, as a lotion to the ulcers, as an injection to the steams and fishulous sores, and as a both for the cure of the affections of the skin and subsurfaneous tissues. Indice tinctures and ointerents are still fascurite applications to all glandadar enlargements. They should be used, however, with contion. I have seen serious sloughing set up in a child's rack by the too energetic insuction of an iodine

ointment into the skin over a cuscous gland.

Chronic discharges from the various mucous surfaces are best treated with astringent injections. Otorrhou from esturely of the nullitory mentes, if limited to the part outside the tympenum, is realily circle by the following lotion:

B. Bonicis	à.,	۷.	ě.	d			ď,	d		ġ.	d				Ų.	į,	Ų	٠.	ä	d	d	gr.	1.
Zinci sulph	atin	90	Ŋ,				ÿ,	ď	ş,	à	y.		×	ä	g,		×	٠,				gy.	SHE
Olycerini	30	36	ä	Ø	G.	8	(4)	G	A	G	10	Ю		a	×	Ü	Si.	×	b		٠	139	
Misse.	400				Ø			ö					-	Ġ	Ø			×	8			5.7	

In using this application the passage must be first thoroughly cleaned by injection with many water, and then half a dracker of the lotion must be poured into the ear and allowed to remain. This can be done two or three times a day. It is important to come a discharge from the ear as quickly as possible. The old notion that storebox in children should not be cherked too quickly is one which if acted upon may have serious consequences.

	Strength recommended by Lugol for his sales was:	
11	Pote field:	
740	Mgd	35
-	Li lottes or injection)	
		print.
	Pens total	gr. min.
36	Aq. destilute	2560
Tie!	all halls, for the may of a child-	
B	Potes in Delli	A11 200

CHAPTER IL.

ACUTE TUBERCULOSES.

Acres inherentosis is an acute febrile general disease which arises in most cases, as a consequence of special hereditary prelisposition. The disease expresses itself assistantically by the formation of the military nodule known as the gray granulation in the various organs of the body. The nodule is in prest part an out-growth from the lymphatic system, and may be found wherever lymphatic or adenoid tissue normally exists. Acres tuberculosis is not to be confounded with pulmonary philants. Indeed, the two affections are essentially distinct, for ulcoration of the lung, at though occasionally present, is by no means a necessary part of the tubercular process.

In the young subject scute tubercules is frequently assumes a form which is rare in the adult. In childhood the disease not uncommently presents itself as a primary fabrile affection, giving rise to but few congtoms, and those the manifestation merely of the general distress without any sign pointing to local mischied. It is often not until a few days before the close of the illness that any symptoms are discovered to draw attention to any particular organ. This is the primary form of the discus-

which has much the character of an acute specific fever.

In other cases, almost at the same time with the beganning of the graeral symptoms, others, more or less severe, are noticed, showing that some particular organ is especially fastened upon by the tubercular process.

This form is not uncommon in cases of tubescular mesingitis.

A third form resembles that which is often met with in the adult when the disease arises as a secondary effection in the course of some other 25ness, and in such a case brings the life of the child quickly to an en-This form is seen when Inherendosis supervenes upon empyeous paramonic phthisis, etc.

Acute tabercritesis attacks children of all ages, and may be seen in 1979 young infants. When it occurs at this early age the anatomical feature of the discuss is always very widely distributed. On the other hand, the other the child the more likely is it that the formation of the gray grant.

lation will be limited to special cavities of the body.

The word "tubercle" has been and is still employed in so vague a sense by various authors that it has almost censed to convey my defails meaning. It may be well, therefore, to state that in the following pages the word is in every case used to signify the actiony nodule called "gray granulation" in the adult, but which in the child very quickly becomes yellow and opaque.

Causalise.—Hereditary predisposition plays a very important part in the etiology of tuberculosis. In a large proportion of cases a distinct family tendency to the formation of tubercio can be discovered. The tendency is not, however, always exhibited in the purents. These are offer, to all appearances, of sound constitution. It may be accessary to push our inquiries further back and ask as to the health of the grandparents and of collateral branches of the family. In a child with this unfortunite predisposition, any cause which impairs the nutrition of the body may excite the numbertations of the tubercular tendency. Therefore lawering complaints and insunitary conditions generally are justly regarded as important agents.

in the production of tuberculosis.

There are certain scute specific malplies with which the tubercular formation is very upt to be associated. Whooping-cough and measles may be said to number tuberculosis amongst their sequelar, so common is it to find children convolucent from these complaints, who are pieced under unfavourable conditions for complete recovery, fall victims to the disease. Typhoid fover is sometimes followed by it. Children who suffer from malformation of the beart with marrowing of the pulmonary artery are also very hable to become tubercular. They do not, however, often suffer from acute tuberculosis. In them the disease is more apt to assume primarily the form of chronic tubercular plathisis, even if the distribution of tubercular formation afterwards generalised. When the prelisposition is strong, any cause which gives a shock to the system, such as a full, a blow, or other similar accident, may be sufficient to excite the outlevak of the disease.

In addition to the cases where tuberculosis is excited in the bodies of persons predisposed to the affection by febrile disturbances or unwholesome conditions of his, there are other instances where the discuss appears to be set up by a local infective process. It has been well established by numerous experimenters that the inoculation of tuberculous matter into the bodies of healthy snimals will produce general tuberculosis; and it is held by Koch and his followers that the infecting agent in such cases is the minute organism known as the "tubercle bacillas." Until lately it was believed that the inoculation into a healthy animal of non-tuberculous or putrid matters would give rise to the formation in the system of a body indistinguishable by the microscope from the gray gramslation. But recent investigations have mode it evident that some followy must have been present in the experiments which appeared to establish this result; for a repetition of the experiments by competent observers how shown that no ill consequences of any kind may follow the introduction of such matters under the skin. Still, arguments drawn from experiments upon animals, especially upon the redentia, which are usually selected for these investigations, are not perhaps strictly applicable to the human subject. In man the presence of softening claresy matter in any part of the body may set up an infective process which is indicated by lever, wasting, and symptoms of general distress, and eventually by signs indicating implication of special organs. After death a general distribution of small nodules which have all the characters of the gray granulation is found in various organs. In children a chronic empressa often induces such a condition, and the child usually dies with the symptoms of tubercular meningitia. Acute tuberculosis may be also set up by other forms of cheesy degeneration. Softening caseons glands and cheesy preumoninare common exciting causes of the discuse; indeed, the scrofulous habit of body appears in itself to be a favouring influence, and the tissues of such integets furnish a congenial soil in which the growth of the tubercular bodies can be readily excited. The share taken by the inherds busilies in the production of inherculous-whether it is the sole medium by which the infection is conveyed, as is manutained by some, or is merely a casual

abilities to the septic agent, as is believed by others—is still at the pres-

out assement a matter of warm debate.

Borber Justicesy.—The distribution of the gray granulation is say frequently general in the child. In the infant it is almost always so in older children it may be limited to our or more cavities of the bale. MM. Edilet and Burtler have commented upon the curious fact that while in the shall, according to Louis' canon, if tubercle exist myerbers is the body it will be found also in the langs, in the child the lungs sensition escape altogether although every other part of the body is effected. When found in one cavity of the body alone, the part affected is smally

the skull or the abdomen.

The gray granulation is a firm, gray, translucent, projecting notate which veries in size from a fine pin's head, or even a smaller object, to a millet seed. In children the refeor very quickly changes to yellow and the translucence disappears; so that whatever organ is examined gray and yellow restrict (the fatter usually predeminating) are found moved together. The growth occurs according to Bindfeisch, as the result of a specific irritation of the endothelia of the lymphotics, the arous name brines, and the blood-results, especially the former; and the nodelss are found to follow the ramifications of the finer arteries became the lynghistics run chiefly in the adventitia of the blood-ressels. On careful exmanation the militry bodies can be seen growing upon the fee vessels, involving the whole estitive of the channel in the smallest arteries, and is those a degree larger forming protuberances on one side. Rindfelich describes the granule as a product of inflammation, and states that it consists in an increasing accumulation of foucceptes in the connective those of the part irritated. Of these white cells a portion take on an epithelicid clusarter. These grow to three or five times the size of a whole blood corpusele and are called tubercle cells. Others develop into the irregular branching bodies called "giant-calla" The giant-cells are not homers. as was at one time supposed, paculiar to inherete. Scheppel believes that they arise within a blood-sessel from the noramulation and adhesits of terracions masses of molecular matter. When they have reached a size which causes distention of the resort, molet begin to appear. According to this observer, the spithelioid cells are derived from processes of the giant-cells. They he around the latter and constitute the greater part of the nodule. According to most observers, a section of the tubergles, after they have been some time in existence, shows a delicate reticulum, the mashes of which contain the cells. This, however, is denied by others.

In proportion as the tubercular body enlarges by accumulation of refs the central part is found to degenerate, and when examined at this stay (i.e., after degeneration has begun) it will be seen to consist in great new-

ure of small, simuded, and granular sells.

The presence of the gray granulation in any tissue is usually qually followed by inflammation in the neighbourhood of the growths. In the case of a serous membrane, such as the memirpes of the brain or the particular, lymph is quickly thrown out, and, if time be allowed, because caseous. In the burge an early consequence is bronchitis and exactly premionia. In these organs the granules very quickly become yellow all caseous, and every stage of degeneration of the nodules is usually to be discovered. Dr. Wilson Fox has described in the lungs of children deal from bibarculosis: gray translations granulations; opaque white granulations of the control to the control of the same, has excess in the centre; pellow granulations, very soft and easily cruched; cheep

granules—dry, opaque, and friable, with or without a surrounding zone of gray transparent matter; groups of the latter forming little masses the size of a pea, bean, or even valuat; indurated pigmented granules, single or in groups; and, lastly, tracts of variable size and irregular outline, granular on the surface, passing inscasibly into the so-called "gray infitration." Sometimes, also, he noticed little cavities from softening of the tubescular masses. There were, in addition, signs of secondary enturnal

Discretion of long and the formation of excities is not a common consequence in early life of acute palaronary tubesculosis. In intants in whom the disease time a rapid course this lesson is very exceptional. It is, however, sometimes met with. Thus, in an infant, appl eight months, with four teeth, who died in the East London Children's Hospital of acute general inherenties with secondary broncho-pastimonia and meningitis, tubercles, gray and pellow, were found after death compring all the existing in the body. They were discovered at the base of the brain, on the perituments, in the substance of the liver, spleen, and kidneys. The lings were completely stuffed with them, and in the lower lobe of the left lung a small cavity had formed of the size of a hazelesst. Such a condition is, however, not common. Even in oblev children, although the duration of the illness is longer, breaking up of the bings, as a consequence of nexts tuberculosis, is comparatively surely seen.

In the services the gray and yellow granulations are seated especially in the semiler bowel, and involve principally the ilium and the part of the excum in the neighbourhood of the valve. The sodules lie in the submuscors tissue, and in the acute form of the disease do not, as a rule, give rise to ulceration. In the four the tubercles are developed on the smallest mulifications of the bepatic artery. They may be seen under the serous cost, and are also found in the interiobular spaces and in the interior of the lobules. They are usually few in number. In addition to being the seat of tubercle, the organ is often found to present other pathological characters not especially distinctive of the tubercular disease. Thus, it may be calarged from a simple hypertrophy or from fatty infiltration, and is conceined the seat of a circlotic change. In the latter case it may give

rise to norites.

The spices is one of the organs most commonly attacked by tuberels. Gray and yellow granulations and large cheesy masses may be fraud, so that the size of the organ is considerably increased. In the Indanya miliary no lake may be thinly scattered through the persuchyna. The little imasses are developed, as observers, in the sheath of the smallest arteries. Sometimes more extensive disease is met with, and large masses of cheery matter are formed which soften and give rise to tuberculous along. These may penetrate deeply into the transl tissus. According to fandficiest, the disease begins in the pepillary portion of the giand, spreading from the aurous lining of the calices. In extreme cases the kidney is converted into a thick-walled sac, buth homospherical protrosions, each of which corresponds to a Malagiphian paramet. The biotics is sometimes involved, although comporatively mindy in early life. Military mobiles appear in the submiscous bissue and soften, giving rise to escular alters the edges of which are found on examination to be infiltrated with closely packed gray and yellow granulations.

In addition to the lesions which have been mentioned, the broachist and mesentenic glands are always enlarged and sheety. Sometimes they

are softened.

How far the choosy matter, which is often found in large quantities in the more prolonged cases of polymentry tuberculosis, is to be regarded as tabercular is a question upon which opposite opinions are held. Virehow and his followers look upon all such enscous matter as the consequence of estarrhal presumonia; and there is no doubt that the miliary nodule is primarily an extra-alreolar growth, while the caseous masses, such as up found in cheery pneumonic, take their origin from a proliferation of the epithelial elements in the air-cells. Before the gunt-cell was known to be a constituent of other than strictly tabercular structures, the presence of this cell was held to be confirmatory of the tobercular nature of the pathological product. Now the presence of the bucillus is considered by many to point to the same conclusion. But is the question one which ear be determined solely upon anatomical grounds? The clinical history of the disease is surely a not unimportant element in the solution. It is genendly admitted that the closest examination discovers in the grav gravals. tion no peculiarity of atracture which can be relied upon to separate the nodule from other bodies having a like appearance, and under the microscope all classer matter has very similar characters. The case is one in which the clinical features of the malady should have an exceptional value in determining the nature of the pathological product; for if two discuses are found to differ widely in the mode of origin of the attack, in the nature of the symptoms, and in the course of the illness, we may healtate to admit identity of nature, however close may be the resemblance in the anstomical conditions.

Symptoms. — Primary inhercules is in the child commonly assumes the form of an acute general discuss. It excites moderate pyreals and marked interference with matrition, and from the indefinite character of the earlier symptoms and the absence of any manifestation of local distress often presents great difficulty in the diagnosis. Sconer or later signs are discovered pointing to discuss of special organs: carebral emptons arise there are undications of guilanousy mischief. Tubercalar meningitis and corolinal imbords are described at length in special chapters. The present description is confined to mass where the discuss is general, and where the bond symptoms are limited to the lumps and other organs as

Children who fall victims to acute tuberenlosis, although eften of delisate appearance, are not necessarily thin and fashle-looking. In many cases the autrition of the patient is very good, and the child is considered to be in every way a healthy subject until the discuss appears. It is not at all uncommon, especially in cases where the chief violence of the malatis expended upon the cerebral meninges, to find that up to the time of his illness the child had never suffered from a day's indisposition. In other cases the patient has been noticed to be consider to childs and prove to the tacks of indigestion. These latter children are often of fruit appearanand larve the "independent aspect." Their skin is thin and transparent, their hair fine and silky, their features regular and delicate, their boxes small, and their shoulders narrow and stoping.

Acute taberculosis may begin gradually or unddenly. In exceptional cases the discuss has an abrupt beginning. There is high fever, bealacter opisitatis, relaxed or confined bounds, and the child is very resiless and stopped. But this mode of beginning is very raw. In the large majority of instances the caset is so insidious that there is a difficulty in frong upon a date for the beginning of the attack. The earlier symptoms, as has been said, are so slight and wayne, and the child passes so gradually from leaffi-

to sickness, that the mether is nemtly quite unable to determine when she first noticed any signs of indisposition. She will say that for some weeks the child had seemed to be less brisk and lively than was his wont; that he would often be about instead of playing , such that his appoints had seemed to fink; but that no special importance was attached to these symptoms mild something more definite was noticed which excited alarm. The first influence of the disease is upon general nutrition. The child begins to look pale, with a curious transparent pallor. His conjunction have a bluish tint, and the lower syslid is discoloured. He loses his sprightleness and gets dell and moping; his appetite is poor, and he falls off in his firsh. A certain amount of fever usually accompanies this condition. In the evening the cheeks may be brightly flushed, and the hands and feet feel hot to the touch. At this time a thermometer in the axilla nearks between 100° and 101°. The patient is thirsty, and often asks for water in the night. In the morning the temperature is normal; but the child when he leaves his bed generally looks pule and distressed. The auxious expression of the face in these cases is indeed commonly a noteworthy placnon-uon; and if combined with nullness of the general symptoms, and complete absence of all signs of local discomfort, is an indication of illness of very serious moment. In some cases there are repeated attacks of chillinew followed by heat; and these may have a periodicity which suggests suspinions that the child is suffering from agns. The chilliness, however, selion amounts to shivering, and swenting is sently or absent. Loss of flesh is never very long in showing itself. The susting is often very gradual, unless some relaxation of the bosels is present, and in the majority of eases is intermittent. In hospital policuls, under the unaccustomed influence of good food and mursing, it is not uncommon for a child to regain some of the flesh he had lest, although all the time the fever contipues and the general disease is parseting its regular track. Even in children who are living in better circumstances the progress of the illness is often very unequal-the child seeming to be alternately better and worse, and the temperature fluctuating canonaly from day to day. Sometimes, indeed, the pressia is found outsrely to subside, and for a lew days the improvement may be such that recovery is confidently anticipated. The intermission is usually, however, of short duration, and the patient reliapses into his former state. At this time a common symptom is orderia of the legs and sometimes of the face, and the urise may contain a trace of albumen. In young baloes the only symptoms of the disease for a considerable time may be slight fever, puller, some loss of desh, an inclustion state of the skin, and a little orders of the extremities.

For the first few weeks the above general symptoms are all that can be discovered; and the most careful emmination detects no cause to which the evidently serious condition of the child can be referred. He is thin, puls, weakly, and listless; but his tongue is obtain, and although feverish and reatless at night, he sleeps fairly well, is not light-headed, and in the daytime makes no complaint. His abstomen is normal, rather flattened thin distended; there is no enlargement of the fiver or spheer—at least during the first few weeks of the illness; and pressure of the helly chicks no sign of feuderness. In some cases a few rosy spots, rather more rest than the typhoid spot, and of a larger size, are noticed on the abstome.

and chest. The skin generally is dry and harsh.

After a time local arregtons arise. These often point to cerebral imitation. An attack of convalsions occurs, followed by aquinting; the pupils are dilated; there is drownings and regidity of joints; and the child dies with all the symptoms of tuberentar meningitis. It other instances the crunial envity escapes, and symptoms are noticed showing implication of

the bings.

The first local night of acute pulmonary tuberculosis is cough. This is short and lacking, and in the surlier period not very frequent. It may be accompanied by some burry of breathing; but the respirations are not always increased in rapidity, and even at an advanced stage of the discusif there to only a moderate amount of entarch, may be little, if at all more rapid than in health. The cough at this time is not accompanied by any abnormality of physical signs. Repeated examination of the chest discovers no deliness on percussion; and an occasional click of stoudens or a sibilant where may be the only phonomenon present. In some cases the child dies without any fresh symptoms; but usually a secondary bourlatis develops after a time. The breathing then becomes rapid, the face is bacgued and livid, and the more dilate in inspiration. The pulse is small and rapid, and there may be some slight perversion of the pulse-respire tion ratio; but this never occurs to the degree noticed in cases of temple. pneumonia. The temperature rises, and may reach 100 in the creating, sinking to 100° in the morning. With the stethoscope we now find the breathwounds covered by a ensp. bubbling rhoughns, which occupies the whole extent of both inspiration and espiration. If the breathing car be heard through the rhondous it is not broadial although the espiration is perlaps prolonged. There is no dalness if rellapse he absent; but sometimes local collapse of small extent occurs at the spen; and we may find a little local dulness at the supra-spinous fossa, or above the climics. with faint brendfall breathing. There is nowhere any increased resonance of voice or cough.

The above signs may persist without alteration to the close. Often between, the inflammation passes into enturrial passements. Patches of damess are then discovered at the spec or clowbere. At these spots the breathing is blowing or inbular; the rhoughus becomes empty, fine, will more empirishing in character; and the social resonance may be inbushly breachaphonic. The patches of consolidation, as in cases of the netubercular inflammation, may coalesce until large areas of tions are solid-

(fied)

The occurrence of broache-presummin is also indicated by increased severity of the previous symptoms. The littidity deepens; the boutling becomes laboured; the soft parts of the class and spagastrian sink is st such inspiration; the male become purple, and the superficial roles of the extremities are foller than in boulth. The temperature also rises to a higher level, and any reach 104° or 105° in the evening. When these symptoms are noticed the affiness is very near its close; indeed, the class solders survives longer than a day or two. Death may be preceded by a

fit of convulsions, doe either to meningitis or asphysia.

A little giel, agod ten, with a consumptive finally history, was a patient in the East London Children's Hospital. The child was said to have suffered when quite young from measies, whooping-cough, and scarliffing but had recovered perfectly from each, although the latter had been ble lowed by dropsy. She had also had an attack of agus when between two and three years of age. Still, the child had been in fair health until six werks before admission. Her illness had begun suitdenly, but the symptoms of first were not marked. She had seemed generally posely, but did not be flesh to any considerable extent; nor was she treathed with cough for the first three weeks. When the cough began it was abort and dry, but see distressing. Three days before admission it had become loose, and the child had expectorated some yellow pldegm. After the cough began she was noticed to waste and to be fiverish, sweating much at night. For a week her feet had been a little swollen.

On admission the ciril's expression was arxious. There was some lividity of the face, and in the ovening her cheeks flushed brightly. Her tongue was clean and her bowels regular. Temperature at 7 s. s., 100.4°. On examination of the chest the percussion-note was slightly high-pitched above the cheirles, but classifier was normal. Everywhere about the chest the breath-sounds were conceiled by a metallic bubbling rhoughts. This was coarse behind than in front, and occupasi the whole extent of both impiration and expension. The weal resonance was normal. A rhoughal fremitus could be felt everywhere about the chest.

After admission the physical signs persisted with lattle alteration. The duliness disappeared from the spaces and none-could be detected elsewhere. The pulse was very rapid, 150–168; respirations, 60–68; temperature each evening, 101–102.4. After a few days the lividity deepened; the child became very restless, and she died on the night day—the fifty-first day of

her illness

On examination of the body gray or yellow military nodules were found in the liver, spicen, and kidneys. Gray granulations were also seen under the scroes cost of the small intestine, and were numerous on the pin mater. The lungs were stuffed with taberels throughout, and the nodules formed projections on the surface underneath the pieura. The nodules sarred in size, the largest not exceeding a lamp-seed in diameter. The lung tiesae between them was of a deep red colour and thre scaliny. It, however, floated in water. The mediastical glands were calarged and cheesy, and one or two were softened.

Besides the parts which have been mentioned, tuberculous sometimes involves the urmary apparatus. The kidneys indeed are often affected, and the consequent congestion is no doubt a cause of the slight albuminum which is a common symptom of the affection. But besides the kidneys, tuberculous may occur in the blabber. This leads is more common in the abult than in younger subjects, but is not with from time to time in the obler children. As it gives rise to many of the symptoms of vesical calculus this form of tuberculous must not be passed over without a word

of mention.

The presence of miliary tubercies in the bladder sets up a cystitis, and gives rise to symptoms which are attributed almost invariably to stone. There is great irritability of the bhalder and increased frequency of micturition; and according to Guébeard, these symptoms are more marked at night than during the day. At the end of the flow of arine some pers may to passed, or a drop of blood mov appear at the extremity of the wrethral caral. There may be pain, which is referred to the regain of the blabler, and the passage of urms is often accompanied by uncasiness. Sometimes micharition is only effected by straining, during which the rectum may prolapse. The urine may be normal, but often is cloudy and thick. It may routsin a trace of albumes. The temperature and general symptoms of tuberculosis are present in those cases. Exploration of the bladder with a sound discovers no calculus; but digital examination by Volkmann's method (i.e., passing a finger into the rectum and pulpating with the other hand above the probest sometimes detects a interestar nedule at the fundue of the bladder.

In the stormel, intestine, liver, and spleen the development of tuberels

rurely gives rise to sufficient local symptoms to furnish grounds for diagnosis. In the stormch the locion may excite digestive trouble; but somethis is an uncommon consequence of the disease, and when present is significant merely of exturb of the mozons membrane. Biguou, indeed, has reported a case in which a child shed after vomiting a large quantity of blood, and on cumination of the body an after was found at the larger curvature susrounded by tuberculous modules. This case is, however, a very exceptional case. In the intentine the lesion scenes to excite no symptoms whatever. The spleen, if throughed with masses of tubercle, may be enlarged; but the layer is rarely increased in size from this case. It is, however, suspectimes the seat of faity infiltration.

The duration of neute tabercalosis in the child is seldem prolonged. In infants it may last six weeks or two months; in other children samewhat longer. The length of the illness principally depends upon the direction of the early stage, for when local symptoms occur showing implication of special organs, the disease usually runs rapidly to its

elane.

Depends.—The disease with which are to toberculosis is next apt to be confounded in typhoid fover. This is especially the case when the inbercular affection begins abruptly with high fever, headache, and bleeding from the nose. A diagnosis is then impossible at the first; indeed it is often only by the after-course of the illness, and the prolongation of the process beyond the time when in typhoid fever a fell of temperature may be locked for, that suspicious are coulded of the real nature of the disease. The diagnosis between an ordinary case of acute tuberculosis and typhoid

fever is given elsewhere (see page 83).

Sometimes cases of neutra gustrie esturch may present considerable tocombliance to scute inhermlosis in its early stage. Not long ago I was consulted about a boy, seven or night years of age, who had at one time suffered to my own knowledge from slight consolidation of the right apex. the consequence of an attack of cutardial presuments. The bay was of serofulous type, thin and pule. He was said to have been losing flesh for some time and to have had a poor appetite. For more than a week his appetite had been exceptionally had; his temperature had been raised, and he had had a lineking cough. I saw the boy at 5 r.sc., with Dr. 4 N. Miller, whose patient he was. The boy's temperature was then 100.2. He was pule with no firsh on his cheeks; and his face was bright and, heely without my sign of distress. His clast was everywhere perfectly normal, except for a lattle dry rhonelous about the back. His belly nos and dotended. There was no enlargement of the liver or spices, and no enables mesenteric glands could be felt. He had no sore throat. The tourne was furred, and the breath had a faint unplement smell. There was no allu-ness in the water, nor any trace of colours of the legs. The spirits of the child were said to be remarkably good; and I was fold that that morning he limb been seen attempting the accountic feat of standing on his band This letter fact, joined with the bright expression of the boy's face, the signs of gustric demograment, and the absence of all evidence of pulments modeled, appeared to us to afford sufficient ground for excluding tabersubsec. I accordingly expressed an opinion that the boy was sufering merciy from a subscute attack of gastric entarth. Sheetly afterwards I heard that the febrile symptoms quickly disappeared.

According to my experience, children suffering from the development of toburcle are intermably dull and spiritless, and usually show signs of distress in the face. If a boy jumps about and plays beinterously, as if he were well, acute tuberculosis may be excluded with a high degree of prob-

ability.

The detection of acute tuberculous depends in a great measure upon the absence of symptoms expands of explaining differently the serious conshirton of the patient. If a child is brought with a history of fever and umbing of some weeks duration, if he looks ill, with a distressal happard face, and if a careful examination of the whole body discovers no discree of organs, the state of the child is evidently not to be attributed to say local cross. In such a case the disgrosis will be between typical fever and tuberculosis, and if from the duration of the illness, or for reasons given elsowhere (see page 85), typhoid fever can be excluded, we shall be reduced to tuberculosis as the cult other probable explanation of the child's state. In a budly fed infant who has been inegularly feverish from teething, and whose nutrition has been some time detective, the history of wasting and pyrexis may raise enquirous of tulerculosis. But in such a case the child will not look huggard and pinehed like one suffering from that disease; the irregular and often greatly elevated temperature of dentition is unlike the moderate persons of the tobercular affection, and will to sufficiently explained by inspection of the guma. Microver, the history of the illness, which will almost cortainly include aeveral attacks of discrhou or sickness, and the account of the clubl's diet will furnish an amply sufficient explanation of his continued indisposition. In an infant scate Inherculosis is almost always accompanied by ordens of the logs. At this period of life the combination of wasting, moderate pyrexia, and a dema of the lower limbs is a very suspicious one.

Eron when the case is first seen in its later stage, after signs of local discuss have become evident, the diagnosis is not always easy. The physical signs of tuburculous broughitis have no special character distinctive of their specific origin, and they must be read in the light afforded by the history and course of the Eliness in order that they may be rightly interproted. In tuberculous broughitis the temperature is higher than is found in an uncomplicated case of the catarrial disease. In simple capillary broughitis the pulmonary affection is seldou accompanied by marked perexia, and the mercury rarely rises higher than 101" in the evening. In tuberrulous bronchitis on the other hand, a temperature of 194° is not mecomics. The chief point, however, is the occurrence of the bronchial disorder in a child worn and weakened by illness of undefined character. and accompanied by force and wasting. If this illness have succeeded after a variable interval to an attack of whooping-cough or accoules, the fact slone should raise a suspicion of the tuberculous nature of the pulmonary complaint. So, also, if beoneho-pneumonia supersene, with spots of local consolidation, the history of previous ill health is essential to a right understanding of the nature of the child's complaint. In either case the coast of symptoms pointing to intracronial mischief is of the atmost value in confirming our suspicions; and if convulsions occur, followed by squinting plosis, unequal pupils, and rigidity of the joints, the tuberculous rature of the disease may be considered to be established (see also

In tuberculosis of the bladder the child's distress is usually attributed to the presence of a vested calculus. There is, however, one diagnostic point of considerable importance. The irritation excited in children by a stone in the bladder is rarely a course of noticeable pyronia, while, when the symptoms are due to vesteal tobsevulous, the evening temperature may reach 102° or higher. Moreover, digital examination after the manner re-

commended by Velkmann, already referred to, will sometimes detect a takervalous module in the fundes of the bladder.

Proposes.—The prospects of a child in whem acute inherences has revealed itself unmustakably are very desperate. In the earlier stage of the disease, while any uncertainty exists as to the nature of the illness, we can still hope; but when a secondary bronchits or estarrhal presuments arises, or signs of intracruated mischief are noticed, death may be considered extens. Attacks of gastric catarrh in children with toberculous and arrobutous tendencies are almost invariably accompanied by fever. If the attack is protracted or rapidly recurs, an intermittent pyreais may continue for some weeks, and on recovery the child may be thought to have passed through an attack of tuberculosis. Probably most instances of alloyed

recovery from acute tuberculosis are cases of this kind.

Treatment.-When a case of acute tuberculous has occurred amongst the younger members of a family very special measures should be laker to preserve the health of those who remain. They should sleep in well wentilated rooms, he warraly clothed, and be taken out of -doors regularly for exercise. Such children should, if possible, live much in the country on a sandy or gravelly soil, and should arould the utilated are of tenta-Their diet should be plain, and excess of awarts and fermentable matter should be forbidden. Children with tabercular tendencies should not be taught too early. It is wise to postpone regular education until they much their sixth or seventh year; and every care should be taken that their sensitive brains are not overtasked. The mother, if herself of fruit constitution, should be forbidden to suckle her indust, and a beathy wet surse should be provided. Any signs of indigestion in such subjects should be promptly treated, and the atmost vigilance should be exercised to maintain the nutritive processes of the body at a healthy standard.

All cuturits, however mild they may be, should at once receive attention, and the purents should be warned of the danger of treating the child as if he were well before all signs of his temporary nilment have disappeared. Arms diseases, especially the contribution, have permiter dangers for these children; and during the period of convalencence the patients should be put into the most fevourable conditions for insuring complex recovery. A good sea air should be always advised in these cases to see

as the child is well enough to be moved from his bonne.

When the disease declares itself no drugs appear to have any value in arresting its course, and very little in returbing the fairal issue. Some thing may be done by treating symptoms and putting a stop to enfecting complications. Then the looseness of the boards, which is often an only symptom of the disease, may be usually controlled by a powder containing three or four grains of rimburb with double the quantity of aromatic club powder every night; and twice a day a drugglit containing dilute sulplante acid (R iij-v.), with tiret, opii (R j.-ij.), and a few drops of glycerine in a tempocated of water. Sometimes the carbonate of bismuth in full does (gr. a.-xx.) may be substituted with advantage for the rimburb in the powder. If in spite of these remedies the looseness still continues, gallic acid (gr. ij-v.) can be given with husbarum.

It is very difficult to reduce the pyrenis in neuto tuberunlosis. Large doses of quinine have no more than a temporary effect, and often appear to be quite useless; salicylic acid and its compounds have little berefinial influence; and the hypophosphites have not in my hands been followed by satisfactory results. The hypophosphite of lime, however, although it does not reduce the heat, is useful in alleviating the various forms of cutarrh so common in tuberculous children, and often has a sensible influence in improving the appetite, and sometimes, temperarily, the strength

Inflammatory class affections must be treated upon ordinary principles.

As the strongth of the child declines, stimulants will be required, and the
brandy-and-agg mixture must be resorted to. The diet should be such

as is recommended for other februle discuss.

CHAPTER III.

INFANTILE STPHILIS.

Streams in the infant is generally the consequence of an inherital faint. It then presents a combination of the so-called secondary and tertiary stages of the disease. Sometimes, however, it is acquired and there is then a primary lesion as in the rotalt. In this latter case the symptoms resemble more those of constitutional syphilis acquired after polarity. Still, the progress of the disease is not entirely mainfranced by the tender age of the patient, for in after-childhood we can often discover many symptoms which are common to the inherited form of the unlady.

Grandon.—The congenital twist may be derived from either the father to the mother; and the severity of the transmitted disease is in direct proportion to the shortness of the time which has elepsed since the

appearance of constitutional symptoms in the percent.

The disease may originate with the father. In this case much diseassion has prison as to the mode in which the mother becomes affected or as to whether she becomes affected at all. In cases where there is an etidence of direct contagion, it has been held by some observers that the mother may be infected by thinted spermatic fluid, although no princry lesion is produced. Others believe that the infection only takes place at the time when conception occurs; others, again, deay that even in this case can infection be conveyed; while a fourth class invists that when the mother becomes herself syphilitie the virus is introduced only indirectly, being absorbed into her system from the tainted embryo. This discussion has, no doubt, great scientific interest, but is of little practical value, Of far greater importance is it to remember that a man may beget a syphilite child long after constitutional symptoms have ceased to appear in his own person. From the researches of Dr. Kassowitz it appears that when left untreated, a series of years-six, eight, ten, or even more-may slope before a man is relieved from the obligation of transmitting the triat to im offspring. When mercurial treatment is adopted, the remedy destroys for a time the power of the virus, and the parent is then capable of begetting a localthy child. But this immunity from transmitting the disease is not perminent. In some cases the influence of treatment becomes exhausted after a longer or skorter time, and the poison recovers something of its former virulence.

With regard to the escape of a mother who has berne a syphilite child, it seems certain that the escape must be incomplete, for she sequires a stronge immunity from further infection. Long ago Colles had it does no a cancer that "a new-born child affected with inherited syphilis end although it may have symptoms in the mouth, never causes ofceration of the bestst which it sucks, if it be the mother who suckles it, eithough continuing capable of infecting a stronge nurse." This law holds good as completely now as when Colles wrote in 1837; and it is difficult to understand

how the mother can be proof against the poison unless she be herself the

subject of the disease.

Still, there is no question of the apparent immunity of many women the mothers of syphilitic children. Dr. Kassowitz has brought forward instances to prove that the most careful examination, combined with watching extending over many years, may fail to detect signs of syphilis in women. who leave borne diseased children. It rertainly does appear possible that, as Mr. Hatchinson believes, a woman may have a form of disease too fee-Un to give rise to external manifestations, but strong enough to protect lice from further contamination. Mr. Berkeley Hill insists that in all these cases the escape of the mother is not real. He believe, too, that in most cases she has contracted applifis in the usual manner by direct contagion, but that the primary sare has escaped notice through examination having been delayed too long after the date of infection.

The mother alone may be discused, the father being healthy. In this case if the mother have contracted the disease shortly before conception, and exhibit the secondary mak during her period of gestation, the child probable never escapes. If four or more years have slapsed since her infeetion at the time when she becomes pregnant, she may have lost her

power of transmitting the disease and the child may be spared.

If the mother be actually pregnant when the virus first outers her evetem, she may or may not communicate it to her offspring. Much depends upon the period of greatation at which infection took place. The more advanced the discuss in the mother before her confinement, the more likely is the infant to inherit the taint; and if a secondary righ have appeared upon the mether's body before the end of her programey, the child usually suffers severely from the transmitted disease. In the initial stage of the mululy the power of the mother to impart the taint is less certain; and it is iniprobable that the fectus can be infected if the parent large not herself saffered from constitutional symptoms. Therefore, if she only contract the disease towards the close of her preguancy, the infant has a fair chance of There is no evidence to show that the disease contracted by the EKING. mother after the eighth month of her pregnancy can be communicated to the feetus in her womb.

The influence of insercural treatment in destroying the transmission power is very decided. If a women who has borne a dead or diseased child be properly treated before or during her next pregnancy, the infant borns after treatment will be either perfectly healthy or will suffer very slightly from the inherited taint. Still, as in the case of syphilis in the father, the counteracting power of the remedy is upt to be diminished by

time.

When a healthy infant nequires the disease after birth, it is mustly during lartation, the apple of the motion or nurse laving become infected by the mouth of another child who suffers from the discuse. It is doubtfail if the milk alone of a syphilitic woman is capable of communicating the complaint. Again, accidental contact with specific purulent discharges, whether from a primary sore or a ascondary lesion, may impart the discoss. In either case the sere produced in the child is a primary one. Another method by which the syphilitie poison may be conveyed to a healthy child is by vaccination. The possibility of such communication was long decied; but many well-authenticated cases in which this deplorable accident has occurred have now been published, and the evidence in its favour is conplete.

Marbid Andrews -- Infuntile synthing like the other districtic diseases

of childhood, may affect the tiones very widely. The pathological charactens may be divided into three classes, according as to whether the part effect. ed is a mucous membrane, a solid organ, or a part of the beny frame-week

The mirrors membrane may be the seat of catarri, of murous putches, or of ulcers. All these may be seen on the inside of the rheeks and lips the fances, and sometimes the small intestine; also upon the laryar, the

Inches, and even the brought

The inside of the mouth is a common sent for erosions and priorit patches. They do not spread down the gullet, according to De John Mackenzie; nor are they to be seen on the posterior wall of the planuar In rare instances syphilitic adversation is found in the small intestine. I ones saw a little boy-four years of age-the subject of obstinate dimrhon, in whom the executions had all the characters usually found in runs of alcoration of the bowels. His father had had syphilis, and his methy in her next confinement gave birth to a distinctly syphilitic child; and had afterwards several miscarringes. The case resisted all ordinary remedies but was eventually cured by the continued application of a mercurial outment to the abdomen.

Macous patches and alcers may be seen on the glottis and epiglottis. The vocal cords may be destroyed by ulceration or may be the sent of warty growths. A cuse is absentione related (see page 417) in which obstruction of the larynx by warty growths occurred in a child who had a past syphilitie history, but in whom no other constitutional lesion could by discovered. Sometimes great thickening is noticed in the prices membrane of the glottis. Thus, in a case reported by Eries a syphilitie child aged three and a half-years-a largagescopic examination slaved that the apiglottic was thickened to three or four times its interal size; the ary-registrifeen cords were thickened and pule red; the left was cord was more than twice as thick as the right, and bulged out at its adjutowards its fellow. The symptoms were aglients, and frequent complete fits of coughing with suffocative attacks. The child was treated with norcural inspetious, and was well in two mouths and a half. According to Dr. T. Barlow, the largest even after recovery, is left very sensitive and smoothible to lead entural. The muccus membrane of the trackes and brought may be affected in a similar way. There may be catarri, or nocome patches, or shallow ulcers; but these lesions are less common here. than at the upper part of the respiratory passage. In mre cases the tivention may be extensive. Thus, Woromelin found in a child of fourteen months old alcoration of the lower part of the tracks, and a similar lesse of the right broadens which extended as far downwards us the next dielsion of the sir-tube.

In solid organs apphilitic lesions assume the form of fibroid greaths, which may be either diffused or circumscribed. Whatever organ be 4 feeted, the nature of the losion is the same. There is hyperplasis of the connective tissue of the puri. This grows, thickens, and finally contracts so that the proper percuelous of the organ is obliterated and replaced by a solid fibroid material. When the leainn is rireumscribed it is caled "gumma." This has essentially the more structure as the diffused form, but tends to soften in the centre by a process of fatty degeneration.

Diffused fibroid change is seen in the lungs, liver, spless, and passess. Gummits have been found in the same organs; also in the heart and sobcuttureous tissue. Occasionally they are found also in the tongue and soft palate, but not in infants. This is a later symptom and seldon occurs be-

fore the end of the sixth year.

he a long the next of diffused fibroal change, the part is solid and grow in colour, with a smooth shining section traversed by the fibrous lines. It is very dense and tough. Under the microscope the absolut walls are seen to be infiltrated with round cells, spindle cells, and fibrous tissue. The round and spindle cells develop into throus tissue, which thickens the sopta and compresses the alteroit. There is also free production of new results, so that the new growth is very vascular. The area of long thus affected suries. Usually the disease extends over a part of a lobe, or even a whole lobe. Besides the diffused form, gunimata are seen sometimes in the lungs. These are rounded well-defined masses, few in number, usually of the size of a nut, and yellowish-white or gray in colour. They are firm at the rireumference, but get softer in the centre, and the interior may be reduced by fatty degeneration to a puriform matter. Microscopic examination shows the absolut walls to be infiltrated at the circumference of the tumour with uncleated colls, while nearer the centre round or coulcells are seen in a fixely retirelated tissue. These two forms of the same lexion are seldon seen, except in dead-born or very young infants.

The liver may be affected, and, according to Dr. Parrot, is most frequently found diseased in infants who die six weeks after birth. The orgon is enlarged and hardened, and may be the seat of a sciences, diffused, as in the lange, or, norm needy, of the circumsenland form. According to Golder, wise first dress attention to this condition, the organ in the diffirsed fibraid change is hypertrophied, globular, hard, and clustic, and its edges are rounder then in health. It creaks on section, and the cut surfree is pinkish-white or yellow, and shows layers of small, white, compacgrains on a rellowish uniform ground. The capillary vessels are obliderated, and the calibre of the larger vessels is increased. These changes are due to the development of new filtro-plastic tissue which compresses the hematic cells, obliterates the vessels, and checks or prevents secretion of bile. Generals may be combined with the preceding, and are seen as circumscribed nodules embedded in healthy tissus. The masses are bright yellow, and present under the microscope the mond round or oval cells. There is commonly more or less softening in the centre, while at the oirconsiderance the normal hypotic cells, between which the infiltration is advancing, become hypertrophied.

The spices is often enlarged, and, according to Dr. Gee, if the culargement is great the child will probably die. Dr. Gee considers the degree of enlargement to be an index of the security of the cachesia. If the child improves the size of the spices does not diminish as the other symptoms disappear, but continues anothered—often for years. In the spices, as in the other solid organs, the disease consists principally of a diffused inter-

stitial hyperplasia.

The heart and longs may be also affected. Guamata have been found in the former organ, and Dr. Comband has described a specimen in which the muscular walls were thickened and hardened, and showed under the microscope an almost universal infiltration of small round cells amongst the muscular fibers. In the same case the kidneys, sithough normal to the eye, were seen to be undergoing similar changes, and their substance was unmaturally firm.

The thymne gland is seldom discussed. Sometimes collections of matter are found scattered through its interior, but it is not clear that these

are the consequence of the exphilitic tains.

The superconal hodies are said by Virehow to be frequently the seat of a fully degeneration. Hober has described a condition in which those bedies are large, grayish on the cutside, Iranslucent, and thick, with an mercus white, irregular spots dispersed through their substance.

The bosses are often the seat of professed structural disease. Our knowledge of the bose disease which occurs as a consequence of inherital arphilis is only of recent origin. Dr. G. Wegner was the first to describe these lesions, and attribute them to their true cause, in 1879. Mere accently Drs. Parrot and Coroll have laboured at the same subject. Dr. Taylor, of New York, who has collected many cases of his own and maked those of others, gives a graphic account of these affections in his walknown volume.

Discuss of the essects system is a fir from uncommon beion. Accepting to Dr. Abelin, of Stockholm, it is found in ten per cent, of the most. The bones especially affected are the long bones of the lines, next cans the bones of the skall, the ribs, the scapular, and the iliae bones. In the long bones there are two chief existing. One begins with the periodeum—periodeogenesis: the other is not connected with the periodeum, but is confined to the ossifying line of the displayers—esteochondritis.

Periostrogenesis begins as a periostitis. Parrot divides it into two forms; the extend and the spongicial or mehitie. The former any orner from the earliest period of life; the latter is rurely seen in industs of ira

than six mouths old.

In the esteed form we find one or more layers of a new growth which is composed of interlacing trahecule lying perpendicularly to the axe of the shaft. The periodeum is thickened and adherent to the growth and the latter has a chalky appearance from copious infiltration with calcurous salts. Consequently it is whiter and more friable than the hors beneath, and the line of junction is well defined. The osteod material is found in the shafts of the long bones and on the crunial bones. In the latter situation it may reach an inch or more in thickness. By the microscope we find differences in structure from true lone. There are no bone expusseles regularly disposed round the Haversian canals; instead corpuselin—three-sided or polygonal resembling the stellate corpuseles of course two tissue—mastoness by their processes with the cells of the periodeum, with corpuseles in the modulary spaces, and with one another.

In the spongioid form, which is not seen in children under six norths of age, a new fibroid tissue, pearly gray or yellowish in colour, is formed between the periosteum and the bons. It is more vascular than normal

consons financ.

The esterial and spengy growths are often combined. If the new material consist of several layers, some may be more traberular, others nonspengy in structure—the chalky layer being nearer the bone, the fibrel innucliately beneath the periodesim. While this process is going at around it, the shaft of the bone may be unaltered. This is usually the case in very young bulkes. In other children the calcursous matter of the shaft may become absorbed, and the tissue be separated into layers by the formation of foreeses filled with medulls. The bone as a consequence becomes light, purous, and brittle. The ends of the bones are thickness, partly by the periode-operatio growth, partly by granulations throse out from the spongicial tissue of the shaft.

Outcoderibitis appears to consist in a supportative cellitis affecting the applyweal end of the Lone. The layer of cartilage preparing for testiful for the becomes thickened to three or four times its natural width, and gets transparent and soft. This increase in width is due to excessive preferation of the cartilage cells, which assume much the shape and size of the

round granulation cells of syphilitic guments. At the same time the interedialar enbetance is dimunished. The cartilage which is actually undergoing ossification is thickened, and shows on section a broad wavy line. By the microscope the osteoblasts are found to be replaced more or less completely by small granulation cells or spindle-shaped elements. After a time destructive changes set in in the bony tissue. Dr. Parrot deacribes a " gelatiniform softening," in which the bone is replaced by a soft, rather transparent material of a yellowish or brownish colour. After death, when the bone is dry, a covity is left. The cancellous structure is also infiltrated with purelent watery fluid, so that the Ismelle disappear and leave a filtro-ensember network filled with the same fluid. According to Wegner, a characteristic feature of this osseous disease is the protrusion of burdles of fibrons tissue along the course of the blood-vessels. These bundles pass through the cartilage, the calcifying layer, and the processes of spongy bone, suil penetrate deeply into the cancellous tissue of the shaft.

As a consequence of this lesion the epiphyses with the confying layer may separate from the shaft of the bone. Supparation in them set up, an abscess forms, and the pus escapes into the surrounding thome by penetrating the periodents. The joint itself is not involved as a rule; but De. Lees has reported a case in which the left elbow-joint and both knew-joints became filled with pus.

Periodeogenesis is more common than osteochondritis. It attacks purticularly the lumerus and the tibia; and gives rise to symptoms, recog-

nised during life, which will be afterwards described.

An osseous lesion, due probably to changes similar in character to those described above, and called ductylitis, may attack the boxes of the haple and feet. Dr. Taylor, of New York, has contributed much to our knowledge of this affection. According to this author, the disease begins either in the fibrous tissue surrounding a joint or in the periosteem. In the first form slight enlargement is seen of one or more tree or fingerseither of the whole length, as occurs in the toes, or of one or more phalangers, as is seen in the case of the fingers. The process is slow and is accompanied by little or no pain, although the awelling interferes with the pley of the joint. The second form is most frequently seen in the fingers. One or more of the phalanges becomes evenly rounded or fusiform. When the first picking is attacked, it usually assumes the shape of an scorn. The metacarpal and metadarsal bones may be also affected in the same way. In all mass, as a rule, the tendency is to resolution. Still, sometimes, if the enlargement is great, the part is exposed to accidental injury. The skin then becomes avoilen red, and bease; alcorates or is socised, and discharges a noft, cheesy detritus mixed with pas. Limited necrosis arry follow and lead to shortening of the flagor. Ductylitis is usually seen in very young children, but it may be a later symptom. The attribur of tingers affected varies. Dr. Taylor mentions a case in which all the plulances of both hands were involved.

The bones of the skull may be affected by the two forms of disease which attack the long bones. Gelatiniform softening is comparatively, rare, but is sometimes found in very young safetis. It begins beneath the perioranism but does not pendirate deeply into the bone, so that it rarely reaches the dura mater. After death the bone has a worm-caten appearance. This form cannot be diagnosed during life. The extend growths are only found in older children. At first they always occupy the same estuation, viz., the frontal and puriotal bones surrounding the anterior for-

timelle. Semetimes they are also seen in the temporal bones, but are never found, unless the disease be exceptionally severe, in the orbital plates or the occipital bone. As they grow they produce a very characteristic deformity of the shull. The fortunella comes to be surreunded by four elevations, which are separated by two furrows intersecting one another in the form of a cross—the one temporese, the other untero-posterion. These esteophytes are usually spongy and perous, but they may because hard and succeeds like normal bone thouse. They sometimes reach an inchand a quarter in thickness.

In addition to the above purely syphilitic changes, local thirming of the hone, called organisately, is often found. This condition, which is a thirning or even perforation in certain spots of the cravial bones was untilately considered to be exclusively a synaptom of rickets. It is due to direct pressure upon the bones of the skull by the brain within and the pillow without, and is found especially in the occipital bone. It may be present in rickets where no trace of syphilic can be discovered, but is most

common in cases where there is a distinct syphilitic faint."

It is difficult to say with certainty at what ago a chibl becomes liable to applicitive disease of bone. Gelatinideau softening and esteechondritis generally occur carly, beginning before the sixth month, and it is probable that they may even be present in intra-etenine life. Dr. Taylor has need frequently seen toteochondritis about six weeks after both. The charge in the cranial bones seem to be later symptome, and to occur most connactly after the second year. In some cases reported by Drs. Ballow and Lees the agos of the children were between two and these years. But changes as ally seems in the most severe cases, although it is said that they are sometimes the only symptom of the disease. If the patient to covers, all traces of the merbed growth may disappear, but it is not rare to find curvatures or twists left as evidence of the earlieria which has possed away.

Symptoms.—The first manifestation of the constitutional taint may occur early or late, according to the degree to which the system is affected by the views. When the syphilitic poison is very active, the disease any first show itself during intra-atterine late. The factus then diss and is been dead before the proper time. Syphilis is thus a common cause of miscarriage; and in all cases where premature labour is found to have occurred repetitude, we should not full to make inquiry as to the previous leadth at the purents. If examination of the aborted factors be made, the boxes and attered organs exhibit signs of being profoundly affected by the applitte

TRIBOTA.

In a less active state of the virus the child, although diseased, may be born alive. He is then much smariated and looks shrivelled. His body is covered with an eruption of penghigua which extends even to the pales of the hands and soles of the feet. He snuffles and has a boarse cry. If, as generally happens, the internal organs are extensively diseased, the child dies. If no disease of the internal organs be persent, the child may higher for a longer time, but he generally dies in the end. It is only in say two cases that he strangles on and eventually recovers.

Usually when a syphilitic child is born alive, he has at first a healthy

Out of one handred cases of cranicables collected by Drs. Barlew and Leve in furty-access there was satisfactory proof of apphills, in forcy there was more or low existence of the discuss, only in tradice was there as indication of apphills to be detected.

appearance. After a time—often between two and six weeks, rarsly after
three months—the first signs of the discuss appear. Before this, however,
the child in many cases has an anhealthy look, although it is difficult to
any in what this unhealthiness consists. There is often great restlessness;
and the infant may sleep badly at night, sometimes breaking out into
paraxyons of violent crying, which are a source of great perplexity and distress to his attendants. It seems probable that this symptom is due to
noctomal pains in the bones, such as often affect adults before the outbreak
of constitutional symptoms. The sleeplessness soon causes under the influence of specific treatment. Sometimes the outbreak of the general symptoms is determined by a februle discuse, such as vaccination or one of the
constitutionals. Thus, it is not very rare to see the rash of meades subside

beaving the exphilities eruption in its place. Souffling is one of the excliest symptoms. It should always be inquired for, as while the child is breathing through the mouth it is not noticed, and the mother attributing the symptom to a cold may not think it deserving of mention. The smuffing is most evident when the child takes the breast, and his manner of doing to is very characteristic. Each breath is drawn with difficulty through the nestrals, and if the obstruction is great respiration has to be suspended while the bube maks. Consequently, he can only draw the milk by short snatches. After every two or three mouthfuls he is forced to desist, and can be seen lying with the nipple in his half open mouth so as to renew his supply of air before he begins again. A discharge from the nostrile soon appears. This is at first watery, but soon becomes thicker and forms crusts which block up the meal openings. Little ulcerations and eracks are generally seen about the nostrile and upper lip, due wither to mneous patches or to scalding by the irritating secretion from the nose. In lead cases alteration of the Schneulerian membrane may take place, and the septum is sometimes perforated. Occasionally, necrosis of the nami hours follows, and fragments of the bones may be found in the dried discharge. The bones may be also loosened so that the bridge of the nose is flattened and sinks down.

Another early symptom is the rush. This appears, as a rule, shortly after the beginning of the coryza. It is seen as flattened, slightly elevated spots, of a rusty red or coppery colour, scattered over the perinaum, upon the genitals, and around the area. Sometimes it begins as a uniform, dingy sed block covering the helly, the permann, and the buttocks. It soon assumes the tint of the lean of ham; its sulpe is distinctly circumscribed. and at the circumference isolated spots are seen of the same colour. The cruption is not confined to the lower part of the body. It is often seen in the folds of the joints, particularly of the armsits, along the sides of the neck, and over the chin. Other varieties of cruption are also seen. Eathymutous and inhercular spots are not uncommon, and uncome patches and nicerations are constantly present on the skin. The ectlymatous postnics are met with in the more weakly children. They are generally covered with a thick ends, under which the skin may alcorate into deep, sharply cut seres. Mneons patches lie at the outlets of the various passages opening on to the surface of the body, and in other places where the skm is especially delicate and moist. Thus they are seen around the anus, and in a girl round the vulra; also about the commissures of the lips, and between the firgers and toes. They are round or oval patches, slightly elevated. The surface is of a grayish colour and is mostoned by constant serretion. On a ninconsmembrane they quickly become converted into shallow alters. Ulcorations and enacks invade the angles of the month and also of the name. They are

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Inter and leave behind flow linear circutrices when they heal. The skin stood \$2 a syphilitie child presents a very characteristic appearance. In sovers cases at its dry, inclusive, and wrinkled in loose folds. The complex con is yellowish, and has been compared to weak enformalist. This tint is unequally distributed, being most marked on the prominent parts, as the modely; but in children who survive it general colour of the skin may be modely; but in children who survive it generally becomes singularly bloodless, and remains pule long after other ayingtons have disappeared.

The hair and epstrows constince full cut. The nails may also be affected. Inflammation and supportation occur in the matrix, so that the sutrition of the null becomes impaired and the unit gets day and is end

off.

The cry of the infact is a noticeable symptom. It is bearse and highpatched from largueed enterth or extension of the nuccess potches to the largue. Occasionally the hoursessess is accompanied by attacks of largegistmas stridelles. In almost every case the oscification of the craid bones is delayed and the foatmelle is widely open; but the growth and development of the teeth are not interfered with, for the teeth are cat early, as a rule, and with little inconvenience to the child. Cramo-tales is present in the large majority of cases, and the posterior cervical climb

are often calargol.

The bone disease presents many very characteristic symptoms. He long bones should be examined for signs of enlargement, superially the banserus, the ferner and tibin. If we place the finger and though an the anterior and posterior sepect of the humerus at the upper part, and early the hand downwards along the shaft, we shall often notice that the beautecomes thickened at the lower and, and that the thickening is greatest at the point of junction of the shaft with the apaphrais. In the thin the thickening can be often detected on the inner surface, in the femer on the outer and inner supects of the shaft. Besides these, there may be beading of the side and thickening of the radius and name above the mist. The esteophytes on the cranial bones have already been described.

When supportation takes place outside the joint, especially if there is fracture of the neck of the bone, we find peculiar symptoms. The child appears as it paralyzed. His arms he promated by the adea of his body; his legs are stretched out straight in the cot; and when the patient is lifted up, they hong home, like the begs of a dell, average from side is side. Crepatation can sometimes be detected between the shall and the separated epiphysis; and if an aloness forms, the joint, which had been tender before, becomes best and stiff and exquisitely pointed. Parcel has

called this condition "syphilitie pseudo-paralysis."

A form of real paralysis has been occasionally seen affecting the bureless of the brachial piezus, and consing more or less complete loss of power in the arms. In two cases, described by Dr. Henoch, voluntary more and was almost completely but in the upper extremities, the flexor muscles of the fingers alone retaining a slight trace of contractility. There were over signs of syphilis, and the paralysis disappeared under the influence of accounty. In some cases a pseudar twisting of the head backwards has been noticed when the child is placed in a setting position

The degree to which the child is affected in cases of inherited syphile varies—partly seconding to the virulence of the poison, and partly, also according to the general strength of the infant. In rare cases, where two are born of purents suffering from this disease, the two children may in affected very unequally. An instance of this came under my own action The children were three months old. One was much emiciated, with a shrivelled, purchasent-like skin, covered with pemphigus. She smalled and encel loarsely. The other was a healthy-looking child, fat and strong, with a good complexion. She smalled and showed on her buttocks signs of recent cruption; but was never thought sufficiently all to require modula advice.

In practice we see every degree of intensity of the application authoric. In one case, like the healthter twin just mentioned, the infant may be plump and strong-looking, with few symptoms and those triffing in character. In another the child is wisened and wasted, with a wrinkled, inclustic, blotchy skin. He is previal and restless, crying housely and whimpering almost constantly. He is always hungry, for the state of his menta und musual passages offers a continual impadiment to his drawing unflicient nourishment from the breast. He gets weaker and weaken-partly from disease, partly from trust of feed. Venuting and distribute perhaps come on, and his miserable little life seen draws to a close.

When the infant survives, he may seem quite to throw off all traces of his illness, and grows up a strong healthy child. But usually, when the symptoms have been severs, more or less perminent impression is produced upon the system. The body may be similarly in growth; the complexion earthy or unbealthy looking; the how thin and brittle. The brain may be also more or less affected, and epilepsy, deficient memory, less of perceptive power, and even gradiently advancing imbecility are enumerated.

as consequences of the disease.

Refspece. - In rare cases the symptoms of inherited explairs are said to be delayed until the seventh, minth tenth years, or even later. Most of these cases are no ilsubt instances of relapse of the disease, the symptoms which occurred during infancy being been slight and transport. The relapse shows itself in coppery oraptions on the skin with discharges from the pose, ever, etc. The skin often ulserates, and the passi boxes may be destroyed by gunary estitis so that the bridge of the now is depressed. The spongy bones and hard pulate may alcorate away, and the volum and pillars of the fraces may be destroyed so as to throw the rose and mouth into one civity. The even may be affected with interestial berutitie; the permanent incitor toth may be notched and dwarfed; and deaftone may occur. Desfress is the consequence, as a rule, of some merial condition of the sufflory nerve. It is solion accompanied by any discose of the outer or middle our, for there is timulus, and the patient curnet hear a tuning-fork placed on the head. It is most common between the fifth and fifteenth years, and can seldem be improved by treatment.

Epilopsy has been mentioned as sometimes occurring in syphilitic children. It is usually one of the intersymptoms, and may exist, as one som in our of Dr. Hughlings Jackson's cases, without any sign of organic discase being detected in the brain after death. Syphilitic children acoustiness die from a basic meningitis with symptoms similar to those produced by the informaliar form of the disease. They may also successful to a corebred homography. Dr. Barlow has described a diffused thickening with opacity of the arterial courts in the brain as sometimes occurring in cases of inherited explains. This may lead to thrombosis of vessels or runture of

the artery with fatal homorrhage.

Lastle, in many children who have suffered from the lawelitery form of the disease we may find anythid degeneration of internal organs, especially of the liver, the spless, and the kidneys.

Degrees. - When the symptoms are well marked the nature of the

discove can searcely be mistaken. The little, old-locking face, with 9a ducky complexion, its fissured lips and crusted nestrils; the stuffling rall hourse cry; the wasted body; the writhled and inclusive skin; the lamble reduces of the butteries and perincoin—all these symptoms are satisficially characteristic. Doubt is only permissible when the symptoms are few and indistinct, when nutrition is unaffected and the child his the appearance of fair health. In such cases there is general puller of the skin and excells examination may detect a few coppery spots upon the body the apleon may be big, and we may, perhaps, discover state calargement of the lower end of the homerus or shaft of the tibir. Chronic copys is associated the only sign of the disease. Persistent smaffling in bullers in recursorly of applicities origin. If it be combined with pallor of the skin specific treatment should always be adopted, especially if a history of previous miscorriages can be obtained from the mother.

In older children the signs of past discuss are: Flattered bridge of the nose from long-centimed swelling of the most mucous mentions when the bones are well, marking of the skin by little pits or richtness from former alcoration, especially when these are scated about the argles of the mouth; protoberance in the middle line of the foretend between the frontal consequent from specific discuss of the frontal bone; unlarged spleen and marked pallor of the skin. If the permanent teeth laws appeared the incisors should always be examined for signs of the clause.

teristic uniformations.

In cases where there is enlargement of the ends of the long boxes the diagnosis from rickets has to be made. As compared with inherited syple fin- richets is a late discous. It marely begins before the ninth morth. The lesions of apphilis are seen early, almost always before the sixth month Again, the bone disease in syphilis is usually evidence of a profound cachetic state. It is therefore, in most cases accompanied by other and asmistabilitie symptoms of the disease. Moreover, it invery partial, solion affects the ribs, and is not symmetrical. In rickets it is always symmetrical rical and general and the ribs are the earliest of the boxes to be affected. In sophalis apparation of the end of the bane and supportation around the joint are not uncommon. In nickets these lesions are never seen. Again. the preliminary syncytoms of nickets are very characteristic, and are quite wanting in an uncomplicated case of inherited syphile. If, in any case, we find that the bone lesions are symmetrical and involve the ends of all the long lones, if there is an absence of the signs of inherited syphila but a listory of the syroptoms characteristic of the early stage of rickets, and af we find that the child's deutition is backward, and that at ten meetins all he is showing no disposition to "feel his feet "-we shall have little difculty in reaching the conclusion that the case is our of rickets. Still a mild form of rickets is sometimes originated upon a syphilitie constitution. Here we shall find symmetrical and general enlargement of the joints and beading of the ribs combined with some of the symptoms of parent or past sephilitic disease.

Disciplina occurring in application children must be distinguished from the recrosis which sometimes officely afromous subjects. In applifs the diseased hone is evenly enlarged, and no inflammation in the integrated occurs orders the size of the lump exposes it to accidental injury. In the filtrons form, also, the swelling is inclosed and paintess, and obtained not quite symmetrical, as in the coscous variety, is distinguished by its lift tendency to end in supportation and absence. In attrumous necessis dis boso is colorged outcomely and generally forms a lump on one sale. The lamp gets bigger, then softens and supporters, adhesions take place with the integrations, and finally the abscess opens and discharges cheesy pas-On exploring the abscess here bone is found at the bottom of the cavity. In all these cases careful inquiry should be made for history or sign of

exphilis in the patient or other children of the family:

Proposite.—The prognosis is serious in proportion to the intensity of the cachesia. The general condition is therefore, of greater importance in counting the chances of a child's recovery than the seterity of any particular symptom. The degree of intensity of the cachesia may be estimated by the date of appearance of the first symptoms of the disease, and by the extent to which notation is interfered with. If the symptoms appear during the first formight and the child progressively wastes, death may be anticipated with certainty. All intercurrent decongenients which interfere with digestion and assimilation of food sensibly increase the gravity of the case. Thus, vomiting and diarrhous, which rapidly reduce the strength of even a healthy child, must be looked upon as very scrious emplications.

Disease of the internal organs or of the bones, as they indicate profound contamination of the system, make the case a very anxious one. Moreover, the interference with function which results from the viscoral disease is another reason for forming a very unfavourable opinion as to the

result of the illness.

There is one special symptom which must not be our-booked in forming a prognosis. This is the condition of the massl passages. When these pasanges are oveloded from swelling and incrustation the child is forced to breathe through the mouth. Consequently, he can take but little nourishment, for while he sucks be cannot breathe, and while he breathes be connot suck. The amount of food he takes is, therefore, very inadequate to the wants of his system, and he is in danger of actual staryation.

If the disease first appears several months after birth, and if the child continues plump, and does not sensibly emacine, the progness is haven-

able even although particular symptoms may be severe.

In cases of relapse, or of so called delayed syphilis, when symptoms appear after the seventh year, much depends upon the early recognition of the nature of the mulady. Syphilitic lesions urgently require specific treatment, and the so-called tertiary forms of the disease cannot be neglected without serious consequences. Therefore, to look upon such besiens as scrofulous in their nature, to be treated with cod-liver oil and tonics, is to commit an error which may be a very fatal one to the patient.

Toutness,—In every case where a woman gives forth to a syphilitic child the nature of the illness should be explained to the father, so that by smitable treatment of one or both parents their future children may be coulded to escape the disease. Treatment began during pregnancy is often successful in preventing the taint from being transmitted to the focus; but it should be began early and, if it can be borne for so long a time, should

be continued for fully three months.

In the child it is important to attack the exchesis at the earliest possible moment. Therefore, if provious children have been syphilitic, and the parent in the interval have undergone no treatment, it is well to place the new-born child at once under the influence of remotion, even although betany have a healthy appearance and present no symptoms of the disease. Mercury is indispensable to the successful treatment of infuntile syphilis. It may be either given internally or applied externally. In had cases it is well to combine internal administration with external application, so as to bring the system as quickly as possible under the influence of the

drug.

The infinit may be given one grain of gray provider twice a day, either alone or combined with a grain of carbonate of petash or a few grains of prepared chalk to prevent irritation of the alimentary canal. After a weak the does can be increased by a quarter of a grain every three or four day noted two or three grains are taken twice a day. If the powders produce irritation of the atomach, they can be omitted for a day or two small the irritation in a subsided. If they still disagree, it is better to charge the proparation of necessary. In this case pseudocide of necessary in does of twenty or thirty drops of the endinary Phistoneopous solution (gr. \(\frac{1}{2} \) to gr. \(\frac{1}{2} \)) can be given in a temperated of water sensetened with givening two or three thoses a day. Children take this said very well, and it will eften agree when the gray powder excites imitation and counting. Calonal in does of one-twelfth of a grain is sometimes preferred, but a is a more opinious preparation than the other.

Externally, mercury can be employed in the form of the colinary mercurial ointment. The most conventent method of using this solve is to mean it is said the flame! band which covers the infant's helly. When this is done great cleanliness must be elected. The whole body must be washed well with soap and water every hight so that all old obtains a removed before a fresh application is unale. Another way of using as many enternally is in the form of mercurial baths. Thirty to ninety grains of the perchlorate may be dissolved in two gallons of warm water. It is better to begin with the smaller quantity and gradually to increase the strongle of the solution. The baths, besides their affect upon the general system, has a very beneficial lived influence upon the submeous beston. When the carboxia is very severe, it is well to combine external with internal trusment; and in cases where there is great irritability of the stemach or bowels, we may be forced to depend exclusively upon the cutaneous absorption of the remedy.

If a mother who is giving suck to her discussed infant he herself undergoing treatment, it may be unnecessary in addition to give mercury to the child. Doubts have been entertained as to whether mercury is only secreted by the breast. Collerior has tested the unith of narroundised notham without finding evidence of the drug in the secretion. Still, it seems certain that an appreciable amount of the remedy must reach the child by this means, for in mild cases very mild improvement is noticed in his avaptous while he remains at the breast. In cases of severity I am disclined to trust to the child's getting a sufficiency of the drug by this charnel, and prefer to supplement the treatment by the direct application of

mercurial ointment to the abdomen.

While specific treatment is being adopted, we must do our best to inprove the general nutrition of the infant. The nulk in syphilitic mether
is too often poor and watery, and ill-adopted for the supply of anti-sent
nourselessest to their offspring. Therefore if the shill wastes, especially
if, by frequently requiring the breast and arrying previolsy after his modhe seem to be ill-actioned by the milk be has sunflowed, it is well to gite
alternate mends of cow's milk diluted with an equal quantity of larrier
water, and containing a small quantity of some malted food, such as
Mellin's Food for Indants. If the shild larve a difficulty in sucking, or account of the condition of his mean passages, this food must be given with
a syrings. If a feeding-bottle be used, care must be taken that no other
child be allowed to such at the month-piece used for the discased infant

and the name should be contioned not to put the tent into her own nouth. In connection with this subject it may be well to remark that it is a duty in all these cases to worn the surses and arrents in immediate attendance upon the child of the danger of infection from mucous patches and other discharging seres upon the patient's body. They should be directed to observe great elecutiones, to avoid wising their bands upon any cloth or toxed used for the infant; and if they have a fager wounded by any seridental rat or abrasion, on no account to handle the child unless the part is properly protected.

The infant must be kept perfectly clean. His whole body should be bathed with warm water twice a day; and if norcornal intentions are being coupleyed, soap should be used for the croning bath. Cars must be taken to dry the child theroughly after each washing. Fresh air is of the utmost importance, and if the patient be atrong consign and the weather dry, he

can be taken out every day warmly dressed into the air.

Vomiting is best fronted by suspending the mercurial for a few days.

If the symptom continue and there he a sour small from the Teeath, the
dist must be altered, as recommended in such cases (see Infantile Atrophy).

If hosemess of the breads occur and be not arrested by stopping the medicine, an alkali with fincture of catesha will usually check the derangement
at once. Diarrhou is soldom obstimate in these cases if the dict be regulated and the child's body be sufficiently protected from the cold.

It is important to attend to the condition of the nostrils. All hard crusts must be removed by building with surm scaler after softening with cold groun. An eintment of the red coids of mercury may then be employed to the inside of the nostrils. Mucous patches must be well touched with the solid nitrate of silver, and if large ecthymatous crusts have formed on the body, they must be removed by positicing. The uncovered

nicer can then be treated with the red mercurial continent.

Internal treatment most not be continued long after the symptoms of the disease case to be noticed. On account of the profound assemia often induced by the long-continued administration of necrounds it is wise to change the treatment as soon as the skin has recovered its healthy appearance, and the other specific symptoms here subsided. Coddiver oil and iron can then be given. In addition, every care must be taken to promote healthy nutrition by judicious regulation of the dist, and vigilant attention to all the minor agencies which exert so material an influence upon the well-being of the inhart.

Part 4.

DISEASE OF THE DUCTLESS GLANDS AND BLOOD.

CHAPTER I.

LEUCOCYTHEMIA

Larcocyments (leukhamia), although a rare disease in childhood, is soenergially seen in the young subject, and therefore may be shortly de-The disease is characterised by great excess of the lencocytes of scribed. the blood, enlargement of the spleet, sometimes of the lymphotic glands, and a morbid state of the bone modulla. Two cases have come under my notice, both in children under three years old. In each of these the mainly assumed a febrile form, and was accompanied by enlargement of the splera without any apparent affection of the lymphatic glands. In lymphadenous, which is described elsewhere, an increase in the number of the white orpuscles is exceptional. Sometimes, however, in that discuss excessive congrowth of lymphatic elements is combined with multiplication of the coletrless blood cells. These cases present a great resemblance to the isn platfe form of lencocythemia, and, indeed, suntomically appear to be almost indistinguishable from it. In the present chapter the splenic form of lencocythemia will alone be described.

Gaserios.—The etiology of leucesythemia is not clear. Out of 156 cases analysed by Dr. Gowers in one-dought there was a history either of agus or of habitation in an agus district. Of my own two cases, one hall lived at Malta; the other was a resident of Lendon, but had lived in a street in which the residuay had been broken up for repairing and religion drains; and for two or three months the npturned soil, saturated with coal-gas and other unbuilthy effects had remained heaped up by the sile of the foot-pavenesat. The disease appeared shortly before the close of three operations, and I cannot but think that the ülness took its rise is the offensive enamntions to which the child had been constantly exposed.

Morted duatousy.—The splcen is enlarged and may reach a great are. This increase is due to an overgrowth of the splcnic pulp, the leavesplen and the fibrous stroma being equally increased. The organ, although ellarged, retains its normal proportions, so that its shape is not changed. Its density is increased and its colour is pulse than natural. On the surface it is smooth unless local peritonitis have occurred, in which case particles of

I may adhere to the capsule. From this cause it may contract allargens to parts in its neighbourhood. Its section is smooth and of a brownish-yellow colour mottled with paler streaks from thekened trabecule, and but little blood escaps from it on pressure. The Malpighian bodies are not very prominent, and may be seen under the microscope to be the sent of fatty or lardaceous degeneration.

The liver is often enlarged from congestion, and may be fully. The kidneys too, are often the seat of fatty degeneration. Hemorrhagic extravasations are common, and may be seen in the skin, the heart, the lungs, the brain, and the retime, and fluid effusions may be found in the

negrous easition.

In some cases the lymphatic glands undergo slight enlargement, but the increase in size is rarely universal as it is in lymphadenous. On examination they appear to be normal in structure without any hyperplasix of the reticulum, and supportation or cascation rarely occurs. As in lymphadenous, adenoid growths may be also found in the tonsils, the follieles of the tongue, the glands of the atomich and intestines, and in other estuations. The capillaries in various parts are distended with collocations of lourocytes. The marrow of the benes is more fluid then natural, is gravish in colour, and shows an accumulation of white and red corpuseles. The blood itself is much altered. It is pale in colour, cougulates loosely, and shows an enormous excess of white corposcles, together with a diminution in the number of the coloured cells. Consequently the relatire proportions, instead of being one whote to four hundred and fifty red, as in health, may fall to one to twenty, one to ten, one to free, or even to an actual equality of number. The white cells may also present peculiar charactors. They are sometimes seen of two quite different forms; the one double the size of the other and full of small fat granules. According to Mosler, this larger form is evidence of morbid change in the Lone mobilis. After death thick creamy-looking clots may be found in the cavities of the heart, the terminal branches of the pulmonary artery, and the systemic versels.

Symptom.—The illness begins insidiously. Sometimes at first the general health alone seems to be impaired; sometimes even from the beginning the beily is noticed to be large. The child loss his sprightliness and begins to look pale and to droop. His appetite fails and he slowly wasten. There is almost always more or less fever, but this is at first slight and occurs irregularly. Afterwards it becomes more continuous and the temperature rises to a higher level.

Enlargement of the spices, although not always noticed at an early period of the disease, is usually to be detected on careful examination. The limits of the organ should be always estimated by percussion as well as polystice. The degree of culargement varies. In neither of my cases did the lower edge reach more than three fagors' breakths below the ribs, and there did not seem to be any great upward extension. In many cases, however, the increase in size is much greater. Some culargement of the

liver may also be noticed.

When the discuss is fully developed, the child is pale and weakly looking. His complexion is very relate round the month and eyes, and at the sides of the axes; but often there is a flush on the checks, which at times is noticed suddenly to disappear, leaving the face glussly pale from the contrast. Often, especially when the discuss is advanced, there is a peculiar sallow, half-passificed test of the skin. This has been attributed to the anemia, the altered blood being mable to destroy the hile pigment

absorbed into it from the intestine. The belly is usually swellen from flatslent accomplation, as well as from enlargement of the liver and spleas.

No tenderness is noticed on pressure of the abdoness, but if the bone
medalla is discussed, pains in the limbs may be complained of in walking.

There is no less of clusticity of the skin. The tengue is furred and the
bowels are often apprisons. Sometimes the stools are loose and simp;
at other times there is constipation. The child may cough, and his brenting may be short; but unless a complication be present, examination of
the chest discovers merely a little large-building chenches at the base of
the larges. The pulse is quickened, especially at right. It is usually over
100, sometimes considerably so. In one of my cases—a little lovy again
two years and a quarter—the mine was high-coloured and offensive, and
contained bile, but no albuman. There was some difficulty in belding it
at night.

The temperature rises in the evening to between 102° and 103°, sink, ing to 20° in the morning. The fever, however, is very irregular, and en some days is much higher than it is on others. The skin may be noist at night, and sometimes there is copious perspiration. An examination of the blood discovers a great sacess in the number of the white corposeles.

As the disease goes on the child remains very fretful and pining. He sleeps builty at night and continues to lose fiest. His expression is very distressed, and his face is white and languard. He is thirsty, but care little for food. Often homorrhages come on, and these effusions form a very characteristic symptom. The nose may bleed, or blood may be the chargest by the month or he stool. Although usually a late symptom, homorrhage is not always delayed until near the close of the illness. Epistacia is sometimes noticed quote early in the disease.

Enlargement of lynquatic glands may occur, but this is rarely considerable in a case of pure spicnic lencocythemia, and pressure signs from this cause are varely noticed. Towards the end of the discuss orders and dropsical effusions are common. There may be ascides or hydrothera or orders of the long, and the lower limbs may swell and pit on pressure.

The fever usually perseveres to the end, and the child grows thinner and weaker. Various complications occur before the close, especially croupon procuments and pleurisy. Death is often proceeded by an attack of correlasions, due, probably, to obstruction of the cerebral capillaries by masses of lencocrites, as described by Bastian.

Displaces.—The symptoms of lencocythemia are sefficiently characteristic of the disease. Irregular pyrexis and general impairment of nutrition, combined with a distressed, pullid face, a solice complexies, a swellen abdomen, an enlarged spices and liver, and the occurrence of epistaxis or melona, point very distinctly to leucocythemia; and the diagnosts is at once confirmed by a microscopical examination of the blood.

When seen for the first time, the case often presents some ersemblance to cuteric fever; and a homography occurring from the bowels might appear to confirm this view of the liliness. But the history, which usually indicates discuse of considerable standing, the complete absence of toy spots, the cubargement of the liver as well as of the splean, the possine sulless tint of the skin—these symptoms are very unlike typhoid fever, and if at a late stage orders of the lower limbs occurs, the presence of a symptom so uncommon in enterior fever should make us at least doubt the correctness of this diagnosis. An examination of the blood showing a large excess of lesscocytes is of course conclusive.

Leococythemia may be diagnosed with certainty if, with an anlarged spices, the proportion of colouriess corpusains is greater than one to twenty. In a doubtful case, therefore, it is well to count the corpusales with the branacytometer. If the proportion of branacytes is less than one to twenty, the case may still be one of leucocythemia in process of development; and as Dr. Gowers has pointed out, to exclude this disease it will be necessary to make repeated examination of the blood, and satisfy ourselves that the proportion is not increasing.

In cases where the lymphatic glands undergo hyperplasm, the discussis distinguished from lymphadeness; by noticing that the lymphatic enlargement is only moderate, and occurs as a late complication. Also that the excess of white corpuscles in the blood is very presented. In lymphadenous this increase is either absent or is comparatively insignificant. Composite cases are, however, occasionally met with, and may be a source

of perponenty.

Proposite.—The discuse invariably terminates faintly; and the more nearly the number of the white corpuscles in the blood approaches to an equality with that of the red, the greater the prospect of an early termination to the illness. Hamorrhage, unless it be from the nose, is a very

ATMY AVHIPORE.

Treatment. No treatment has yet been discovered which is enpuble of arresting the progress of the disease. Arsenic, which is of great value in cases of lymphalanous, has no influence in leucocythemia, and quantitie, iron, and louiss generally have proved to be quite useless. Col-liver oil may, however, be given, and is said to be sometimes of temporary benefit. In an early stage of the illness faradisation of the splenic region for fifteen mirates twice a day is said to diminals the proportion of white corpuscles in the blood. In a case reported by Mosler this application combined with the internal administration of piperine, oil of surallyptus, and hydroch orate of quining reduced the size of the liver and spleen and greatly improved the condition of the blood. Dr. G. V. Poore finds the see of the spleen to be diminished temporarily after fundamental, but water that the thempeatic benefit derived from the application is very transient. Many times a spleen which was left to be smaller and softer immediately after galesnism was found after only a few hours to have recovered its former size and again become tense and hard. Dr. Poure states that the bucocytes in the blood are increased in number directly after the application. Injection of various substances into the spicen lim been aftempted, but the results have not been encounging. A case is reported in which a grain and a half of salicylic acid was injected into the organ, and the patient died sex hours afterwards.

Excision of the sphere has been tried, but has invariably led to such
effusion of blood that the death of the patient has very quickly followed.
All we can do is to treat distressing symptoms as they arise, and to supply the patient with such autritious food as his stomach can digest. Quick
is very important when the arcensia is great. Locomess of the boxeds
must be treated with small doses of rhaburb and the aromatic chalk porder, or with dilute sulpharic acid; colors with digitalis and discreties;
is coordings with the ordinary styptics. If the pain is complained of over
the sphere, it is best relieved by counter-critation and anodyne applications,
such as amening the surface with equal parts of the extract of belladoum

and giveening, covering the side afterwards with cotton-wook

CHAPTER II.

LYMPHADENOMA.

L'arrenterezza (aftenia, lymphatic ansenia, Hodgkin's disease) is one
of the less common diseases of early life, but it occurs sufficiently often
to render the affection a not undamiliar one in Children's Hospitals. Lymphadenous consists in a hyperplasia of lymphatic tissue in enrices para
of the body, even in situations where such structures do not normally
exist in any great quantity. The lymphatic glands are chiefly involved,
but the spleen, liver, and kidneys may be greatly enlarged and altered in
structure. If the enlargement be limited to a few glands or organs, the
disorder may have the chameters of a local complaint. Usually, however,
the affection spreads very extensively and exhibits all the phenomena of a
general disease, being attended with fever, westing, great and increasing
puller, and marked weakness. In the end it is almost invariably fatal.

Cincetion.—The causes of lymphadenous are obscure. Disthetic too denses have been supposed to give rise to the disease, and there is no doubt that in some cases pulmously consemption or syphilis has been noted in the purents. In other cases, however, the family history has been good. Acute disease in the shall himself has sometimes appeared to be the starting-point for a slow deterioration of leadth which has eventually developed into undoubted lymphadenous. So also the coursenor of the filness has been attributed to bad or insufficient food or insuritary conditions generally. In some cases, however, no sufficient cause his been discovered to account for the failure of health. The discuss, the taberculeuis, with which it presents certain affinities, may develop without apparent reason in a child whose health had previously given no cause for arrively.

In not a few cases some local derangement or injury has appeared to to the exciting cause of the enlargement of the lymphatic glands. Thus a decayed tooth, a patch of excess, an eterrhess—all these hare been known to be quickly followed by a swelling of the glands in the neighbourhood of the irritant. In secondous subjects a persistent enseous enlargment of glands from this cause is not uncommon. In lymphaticuma, however, the mortial changes do not remain limited to the neighbourhood of the irritant. Others more distant from the sent of irritation take on the same unhealthy action, and thus the disease aprends widely so as to

involve adenual tissue in all parts of the body,

The age of the children affected is usually four or five years and apwards. I have, however, seen a well-marked case in an infart eight months old, who had begun to suffer at the age of three and a infiguration.

Mortes' disables y.—After death in a case of lymphadenoma we usually find great calargement of the lymphatic glands, and often of the spice, the laver, and the kidneys. In minition there is commonly overgrowth of the more minute collections of alencid fissue in various parts of the body, as in the tonsils, the pharyne, the gullet, the stomach and intestines, etc. Of these the more considerable calargements are often limited to a compositively few organs and structures, but naicroscopical summination discovers very wide-spread charges in parts which present little or no apparent alteration to the unposited eight.

The lymphatic glands are greatly enlarged, and the calorgement may be in two forms—a hard and a soft swelling. This difference appears to depend less upon the nature of the growth than upon the rapidity of its progress, for the two varieties may be found combined in the same

subject.

The size of the swollen glands commonly varies from a laxel-unit to a hen's egg, but in exceptional cases the growth may much still more considerable dimensions. The first glands to be affected are usually these in the neck. Then follow is order of frequency the explany, argumal, retroportioned, broughtal, mediastical, and mesenteric. But besides enlargement of glands, circumscribed growths may be developed in spots where, although adenoid tissue exists normally in small quantits, it is not collected into glandular mesons. By this means the various groups of calarged glands may be found connected together by claims of newly developed

lemphatic usdales.

When a group of glands takes on the morbid process, the individual bodies at first remain distinct and are morable. As the disease progresses thry cense to be morable, and eventually become welded together into a solid mass. The process of union consists in a disappearance of the capsale, which becomes pierced and ultimately almost destroyed as the new Implistic tissue accumulates. On examining such a mass the outline of sinessed glands can be recognized here and there by a thin filipons capsule, but the confinues is for the most part complete, and no intervening infil-Inition can be discovered. On the surface the mass is often very irregular and nothbook and may be metrical with white or vellow patches, but execution is soldon seen. If the mass be superficial it may be adherent to the skin. In care cases it suppointes. The greater or less incluess of the ealarged gland is determined, as has been already said, by its repulity of development. If it grows very quickly the gland is soft. On section of surle a gland the substance appears often to be almost different. If femore, it yields a creamy juice when semped. If very firm the hardness is found to be due to hyperplasia of the fibrous strong, dense bands of fibrous the one running in various directions through the mass.

Under the microscope the morbid elemps in the glands is seen to consist in an enormous increase in the lymph corpusches. These accumulate, and by their pressure may perforate the capsule and even split up the septu and cause them to disappear. In the softer growths the discussed process is chiefly of this kind. In the firmer glands there is an increase in the filterens strong, which becomes greatly this kend. The hypertrophy tour even obliterate the meshes of the reticulum and convert the orgin

into a muse of fibrous tisane.

The opten commonly suffers, especially if the disease begins in the lymphatic glands of the neck. The organ becomes greatly enlarged. His borned lymphatic tiseas takes on a rapid growth, and shows the most budency to fibrosis that is noticed in the glands. Externally the organ is of a shall relatish colour with paler patches, and yellow spots from the size of a mustacd-seed upwards are often seen scattered over the surface. To the touch it is usually dense and firm. On section whitish or yellow nodthes are discovered on a dark-red ground. The notates are more or less closely aggregated so as to form masses of varying size and shape. The new material appears to originate in the Malpighian follicles and the periarterial sheaths of lymphoid tissue. It is composed of lymphoid cells and large quantities of imperfect fibrous tissue. The fibrous strongs is after thickened, and may show bands of fibrous tissue without definite arrangement, or running lessely parallel so as to form and bonds by their dissegucies. In a late stage the builds are sometimes pagasented at their edges. Under the microscope these bands appear to be fermed by upol industation of a lymphatic tissue growing around the records.

In the foot the new growth usually appears in the form of small, irregular, infiltrating masses which may project as irregular prominent patelon on the surface. The structure of these growths is similar to that of the new material in other parts, but in this organ flow appears to be a greater tendency to cascation. The hypothatic new greath occupies the interlobular spaces. In a case reported by Dr. Greenfield it seemed to start in the portal canals as small masses which extended around and into the lottles.

the lives cells becoming degenerated and shrivelled.

When the kidness are affected the organs are enlarged and often irregular in shape. Their colour is light yellow or even dull white, and evelymoses may be scattered over the surface. Sometimes signs of norse profuse
homograps are found, and large purple blotches are seen through the
capsula on the pule surface of the gland. On action the certical substance
is more or less overfled, and is of a yellowish-white colour mettled with
points and patches of red. By the microscope an excess of nicroid tissue
is seen between the tubules, sometimes separating them widely. The
growth is collected in large quantities around the glomernia and in sens
cases the new tissue appears to pass along the vessels into the interior of
the Malpaghian capsule. In both liver and kidneys it is common to find
blood-vessels blocked by masses of colourless corpusates.

The new growths developed in places where adenoid tissue exists norimily in minute quantity are usually rather soft and elastic. They are of a pinkish colour and very vascular. Such local developments of traplatic tissue may be seen in the tomals, at the back of the pharyus, and in the gallet, stomach, and intestines, originating in the followise glunds. All these often undergo electricism. Growths have also been found in the festicles, peritoneum, oncentum, plenra, and in the large. In the latter situation

they often brenk down and form cavities.

When the blood is examined microscopically the red corpusche are aren to be very pale in colour, but they metally form realcury in the updirary manner. Amongst them are corposeles of much smaller distrator. The red corpuscies are considerably reduced in quantity, but there is aldom any material addition to the number of white corpusates; indeed, in many cases, like the red cells they are diminished in number. Sometimes, however, the forcesyles may appear to be slightly more numerous than in the healthy subject; but even if the spleen he greatly enlarged, to itemate sufficient to constitute leasurem is observed in cases of true lympholenotes, and the white cells never present the altered characters which are noticed in the former disease. As a rule, a greater excess of white corpus cies is seen in cases where the lyandantic growth is of the soft variety than where it is hard and chiedy filmoss. Forms of mixed discuss are also sometimes not with in which there is increase in quantity of the spletic pulp. The affection has then sense of the characters of Inneocytheum. Symptons - The symptons of lymphalenum may be divided into those proper to the illness, which may be called the regular symptoms, and those which are irregular and accidental, being the consequence of the pressure set up by the growths upon the parts around.

The regular symptoms consist of the general constitutional disturbance excited by the disease, the changes in the state of the blood, and the pres-

ence of cularged lymphatic glands.

The general constitutional symptoms may precede or follow signs of enlargement of glands. They consist of a februle movement more or lesshigh, with gradually increasing wasting, paller, and loss of strength.

A little boy, aged three years, was under the cure of my foruser colleague, Dr. Mitchell Bruce, in the East London Children's Hospital. The child had been ill and languid for three mouths before admission, gradually moting and suffering from occasional attacks of distribute. When brought to the bospital he was weakly, with a pale complexion and huggurd, auxious look. His face often finded up suddenly; his skin generally was harsh and day. At first no special disease of organs could be discovered. The splean could be felt projecting about half an inch below the ribs, the liver was normal in size, and no enlargement of the lymplastic glands was noticed. The boy coughed occasionally, but the plays and signs about his chest were normal. His temperature on the first evening was 101.47, and continued to stand at much the same level for some time. It sometimes sunk to 90° and at other times rose anddenly for a few hours to 104", but it usually earled between 100" and 101". The boy continued in much the muse state, being usually spathetic and dall, although he brightened up a little at times and would play belonly with his boys. The course of the niness was very variable, and the child seemed much worse of some times than at others. Once or twice he seemed decide ity better and regained a few conces of his weight, then be relapsed and wasted, maidly losing a period and a half in a week. Offer he was drowsy, and his appetite was always poor.

As time went in the liver and spicon became moderately evolve, signs of enlargement of the broading glands were noticed, and deep pressure in the abdomen discovered some enlargement of the measurement

glania.

The boards remained more or less losse. The boy greet slowly weaker, and died after a residence of four months and a built in the hospital. There was never any ordered of the limbs and the glands in the neck were

not unected

On examination of the body after death, large yellow, checoy-looking trasses were found affected to the under surface of the breast-look, and the anterior mediations was filled with a large mass of arginitated glands. A similar mass was found in the abdomen in front of the spine just below the displarage and surrounding the head of the punctures. The liver was large, soft, and flabby to the touch. Its section showed a half translucent appearance, and on close inspection this transfound to be due to a multitude of closely set little masses, the size of a pin's best or less, some clear and transparent, others more yellow. The splora also was large, and its section showed the appearance usually noticed in this disease and which has been already described. Both large were found on section to be percalled with small masses of new adenoid growth.

In this case the general symptoms preceded the signs of local mischief.

Often, however, especially if the illness begins, as it community does, with
enlargement of the corried giands, the affection has at first the characters
of a local disease. But some or later, as the lymphatic tissue becomes

more and more involved, the petient begins to suffer from irregular fever

and grove very decidedly amount.

The glandolar swellings in the neck assally form an irregular nearlier mass which may extend from one side to the other, passing underscath the thin, or may be implied principally to one side. At first the individual glands can be used out, and the masses are movable. Afterwards the glands become more webled together and the masses are fixed. The swellings are possess, and unless of very rapid growth are dense and firm to the touch. In some cases a mass of enlarged glands will become very soft and supporate, forming an abscess which discharges and heals up in the cedinary manner. Besides the neck, enlarged glands may be felt in the action and groins. In the armost the same of the growths may interfere with the movements of the arms. Examination of the chest and belly often discovers a similar charge in the glands lying in the auterior mediatirum and abdomen. The enlargement of the liver and spleen is usually softened, although accordance—especially in the case of the latter organ—it

may be very considerable.

While the discuse is limited to swelling of a few glands in the neck, the child although pale, may be active and electful apparently suffering in no way strept from the local inconvenience. When, however, the glands grow rapidly, or the disease spreads from the neck to other sorts of the body, constitutional exceptoms begin to be noticed. Fever is almost invariably present, although in the curiler stage it is slight and intermittent. In the cachectic stage the temperature often rises to a high level and for a few days together may range between 100° and 100°, semetimes end passing the higher limit. Sweating is not common; in load, in most cases the skin is excessively harsh and day. The digestive organs shoot has riable suffer. The longue is covered with a white for, and the popular are reconnect and red. Ulterative stematitis may be present on the inter-side of the check. The appetite is poor and indigestion and conding may be complained of. The bowels are sometimes costine, but often they are loose, and the dejections may be preceded by griping pains in the belly. The looseness is due in many cases to small ulcarations of the ileus. There is then usually abdominal swelling, increased tension of the parteties, and tenderness on pressure. More or less rough is a common symptom, and an examination of the chest often discovers signs of convolute tion and soltening. These lesions essentially result from growths in the long which soften and break down into cavities.

Great apathy and definess of mind are in many cases associated with the cachecile stage of the discuse. The childreny be found to sleep about constantly, his senses seem duffed, and his wants are so little present that he asks for nothing and makes no complaint. Indeed, constinue it is most difficult to get him to speak at all. The arrivary function is rawly interfered with, but sometimes blood is passed with the prior. In a conreported by Dr. Goodburt—a little girl aged ton months—the child's water

towards the end of the disease became red with blood.

The anothin is usually extreme. The whole surface of the body is excessively pole, and the nucceus numbranes are singularly bloodless. Perpuric speks may be found on the body, face, and limbs, and sometime larger dark purplish blotches are seen from more extended extraoration. Flushing of the face is a common symptom, and a redness of the shocks of this time forms a surface contrast with the dead whiteness persisting round the mouth and eyes. A microscopic examination of the blood shows as alimination in the number of the policy procedes which has been street. referred to. The white corpuscles are rarely in notable excess. As a consequence of the ansemia column may occur in the limbs, and there may be assites. Pressure of the enlarged glands upon the remoss trunks may also

still in the production of serpes effusion.

A good example of the more common form of the disease, where the general constitutional disturbance occurs subsequently to the primary glandular enlargement, was seen in the case of a lattle boy, aged thirteen years, who was under the care of my colleague, Dr. Donkin, in the East London Chibbren's Hospital. The boy rame of a healthy family and hed kinself been strong and healthy until the age of eight years, when he was laid up for these mouths in consequence of a fall on his head and spine. In this illness the laid could not rest on his back or sade, but was obliged to lie on his face. Although he began to walk again in two mouths' time, and was convolencent at the end of the third mouth, he never recovered has strength completely. Teeles mouths after his illness he was again hid up with pains in the chest and swelling of the face and arms. The swelling nour subsided, but the boy remained weak and complaining and was often under medical treatment.

On admission the patient complained of Image in his neck which he stated were of three years' duration. For three months he had been losing flesh and has helly had been growing larger. His skin, he said, had been dry for some time. His lags had never swelled, but he had noticed a swelling of his screetum for three or four days. He was subject to cramp-like point about the ambilious which were often sower, and the helly at these times was tender. He had had a rough for a month without expectoration,

and his towels had been relaxed for a week.

On examination the boy was found to be very thin, and his skin was dry, rough, and furfurneous, especially about the belly. The cervical and submanillary plands were enlarged on both sides so us to form a collar round the neek. The anillary and ingunial glands were normal. No enlargement of the liver or sphen was noticed. The abdomen was disbouded, with fulness of the superficial coins. There was some tenderness on pressure below the ambelieus, and the tension of the parieties was increased. No greath could be felt in the belly, and there was at first no ascites. There was some ordern of the scrotten, but note of the arms or legs. The torque was red and rather row-looking, and some superficial observation was noticed at the angles of the month and inside the left clark. The boxels were relaxed, the stools being loose and hightish yellow in colour. There were signs of consolilation of the right long. The trine was pule, slightly alkaline, but contained no alleance. An examination of the blood showed the absence of any cross of white corpuscles.

After admission the toy remained in a very spathetic state, and whether up or in bed seemed to be always drowny. He would be found aslesp with his head on his arms or curied up on a sofa. His face was habitaally very pule, but at times it would finsh up irregularly. He coughed occasionally, and expectorated tenneires muchs. His temperature was always high, rising at night to 103° or 104°. He continued to maste, and grow weaker. Death was hastened by a severe attack of vossiting which pro-

steed great prostration, and he died soon afterwards.

After death the cervical, broughish, retro-paritonesh, and mesentence glands were found to be encounciedly subarged, forming anglescorated trasses in which, however, individual glands could still be unde out. The calarged plands were very tough. On section, the larger number were of pellowish that and seemed fibrous, but a few were grayeds and translucent. Some contained caseous matter. New growths very similar is appearance were found in the pleura and peritoneum. There were some alons in the abundance of the pleura and peritoneum. There were some alons in the abundance hard and alone were found on the autorier wall of the traches; and on the posterior surface of the epiglottis were relieved infiltrations of a roundlish shape. All the mucous membrane in this neighbourhood was highly injected. Both lungs were the seat of constitution which had broken down into cavities. The sphere was large, soft, and conputed. The Malpighian turbs were not visible. The kidneys and line were normal. The nurrow of the right femur was mottled, red, and pro-

The overage or accidental symptoms arise from pressure set up by enlarged glands or organs upon adjacent parts. Thus the avoltes glands in the neck may press upon the jugular veins, and by impeding the escape of blood from the interior of the skull, cause heaviness, drown ness, orders of the head and neck, and epistaxis. They may also lamper the movements of the lower jaw, press the laryax and tracks to one sale, and cause dyspaces by their interference with the sir-passages. Sometimes they obstruct the claimed of the guillet so that food passes with difficulty or scalibeing becomes actually impossible. Enlargement of the broadcal glands may produce dyspaces, spannodic cough, and all the symptoms which have been commented claushers as the consequence of pressure within the rheat (see page 181). Growths of the meantain plands may set up assites and jourdice by their personne on the bile-dates or portal win, and coleran of the sentum and lower limbs by their interference with the return of blood through the inferior were con-

Paralysis has been occasionally noticed. Thus Dr. Goodlinst has reported the case of a little boy, aged six, who was admitted a patient under Dr. Pasy, in Guy's Hospital, for complete puraplagia, with incontingnee of unas and deficiency of sensation below the untilieus. After death a lymphomatous growth was found in the thorax, which had entered the spiral const in the derial region by passing through the intervertebral forwise. Here it had lined the limins of the vertebral from the axis to the eighth covical segment. In addition it had formed a mass which at oupoint completely filled the canal, compressed the coed, and had formed adhesions with the cord and the duri mater. Below this point the sub-

arachnoid tissue was distended with fluid.

In a case which was mider my own care in the East London Californ's Hospital—a boy ten years old, who suffered from an enormous traw of enlarged certical glands on the right side of the neck, besides lesser etlargement of the mounterie and arguinal glands-for some weeks before the child's death plosis was noticed of the right eyelid, and an exammation it was found that the pupil of that eye was somewhat diluted and that there was puralysis of the internal rectus. At times, too, the lay complained of severe neuralgic pains in the right cycholl. After death inspection of the hody showed a mass the size of a walnut, which by it the middle cerebral fosse, and was adherent to the dura mater covering the cavernous sinus. The most had a prolongation which pessed through the formen bearns medium and joined the general glassistic mass in the neck. Its pressure upon the right third nerve had coused see atrophy of the nervo-fee it was appreciably thinner than that on the ket side-and had, no dealst, given rise to the paralytic symptoms which had been noticed during life.

The duration of a case of lymphalenoma is very variable. When the illness begins as a local discusse, the course is usually very slow at the first and it may be years before the general glandules system becomes affected, When, however, the eachectic stage begins, the course is more acute. Still, the progress of the unlody is always variable, and growth is more rapid at some times than at others. In the child the general discuss rarely lasts longer than six or eight months. Death may result from asthmal or from sence complication, as passimonia, pleurist, vomiting, or discribus. It may be proceded by convulsions. Sometimes the end is incomed by the injurious effects of mechanical pressure upon the stepsissages.

In the diagnosis of a case of lymphadenous we have to search for evidence of general affection of the glandular system. So long as the disease remains limited to a few glands of the neck the nature of the swelling is not always easy to accertain; but even at this time it may be sometimes distinguished by the elasticity of the growth for, according to Eurch-Hirschield, even in the lasticity of lymphadenous there is a certain elasticity as compared with the decay, bourdilke hard-sees of the cheesy gland. Moreover, there is no inflammation set up round the mass, and ensees degeneration and softening are very rare. In a group of acrofulous glands asize usually soften easily and form an absence. In such a case, too, the general signs of scredula may be noticed.

Successions glands present a greater likeness to lymphalenous; but when extension takes place in the former disease the tissues involved are not especially the Irraphatic tissues; indeed, the disease tends to surecal

rather to organs than to ghands.

In the eachertic stage lymphalenous is usually any of recognition.

The irregular fever, the extreme puller, the great drowniness and unwillinguess to speak, the general implication of lymphatic glands in all parts
of the body, the character of the blood, which shows dimination in the
number of red corpus is with no or only slight increase in the proportion

of learneyles. These symptoms are sufficiently characteristic,

Proposes —Although some cases of recovery from this disease have been recorded, the illness is so generally total that little loope of a favourable issue can be entertained. In the cachectic stage speedy death may be unforpated. In the earlier period a prolonged course may be hoped for, especially if the enlargement is slow; but it is unwise to speak too favourably seen of this prospect, for the disease may at any time suddenly assume an acuter character, and variations in the rapidity of its progress are not uncommon. Examination of the blood may be of some service in estimating the probabilities of a lengthened course. If the number of red corposeles is greatly reduced, the child's prospects are very unfavourable.

Treatment, — In every case the child should be put into as good sanitary conditions as possible, and every effect should be made to improve the general health. Cod-liver oil, iron, quinine, and tonics generally are useful in this respect, but none of these remedies have the power of delaying materially the progress of the discrete affection of the lyaphatic glands has become general. Arsenie, however, is highly speken of for its talke, even in this stage of the discrete. The dose should be a large one; and it must be remembered that most children have a special tolerance for this slrug, being often able to take it in larger quantities than can be readly beene by the adult. For a child of eight vests old ton drops of Fowler's solution may be given time times a day, fixely distred, directly after food, and every few days the dose can be increased by two strops. The effect of the molicine is to increase the softness and mobility of the glands. Soon pain begins to be complained of in the swellings, and this

is quickly followed by an arrest in their growth, or even an appreciable diminution in their size. Iron may be given with the arsenic if thought desirable, and the combination is preferred by some. Phospheres has been also recommended as useful in promoting reduction in size of the ghands; but this drug appears to be decidedly inferior to arsenic. In this of potassium has been found quite useless as an absorbent in this dimen-

If the patient come under observation when the glandular swelling is limited to the neck, and the general system appears to be numbered, we may begin the treatment with greater lopes of success. Early extirpating of the growths is often advocated, and the operation is said to have been followed in some cases by complete recovery. Even if this happy result he not attained, we may expect that in a suitable case the progress of the disease will be sensibly chacked by the operation. We can, however, calv. anticipate good results when the glandular enlargement is limited strictly to one group of glands, the spicen is unaffected, and the proportion of rol commiscles in the blood is not greatly reduced. Dr. Gowers recommends that in every case the artial proportion of red corpuscles be estimated by the harmseytometer, and states that if the proportion of reloured cells be less than sixty per cent, of the normal average, the idea of operating should be simplored. On the other hand, a slight increase in the startity of white communels is not to be rousidered prejudicial to the success of the operation. After removal of the swellen glands the child should be west to a lorseing sesside air, and arrence with quining or iron should be given in full doses,

According to some writers, friction of the growing glassis with the hand alone or with some simple sales has been found no ful, and compression and blistering have been also recommended. Injections into the glands of various substances, such as indine, carbolic acid, etc., in not a sele method of treatment. In one case in which I injected tract, isdi and a barge lymphomatous swelling the operation was followed in a few days

by a rapid and permanent increase in the size of the tumour.

CHAPTER III.

ANAMMIA.

Directories in the quality of the blood, combined often with deficiency in its quantity, is a common result in infancy and childhood of any condition which causes a temperary failure in the nutritive processes. In the child amenin is commonly symptomatic of some discoverable ill; for the obscurer form, called idiopathic or permicious amenin in the solut, is but

mody met with in early life.

The reason of the exceptional frequency of impoverishment of the blood in childhood is not difficult of explanation. From the researches of Denis, Poggiale, Wiskemean, and others, it appears that in infincy although the quantity of blood is greater than it is in maturer life, in proportion to the entire weight of the body, this blood is of lower specific gravity, and contains more whate corposeles, but less fibring and soluble albumous, a smaller proportion of salts, and a considerably smaller quantity of its moglobia." With this comparatively dilute blood the growing child has to undertake a larger work than is required from the adult. He has to supply material for growth and development instead of merely maintaining the accessory nutrition of tissues and organs already majured. The heart and lungs are ferced to greater efforts to answer the demands made upon them: the first to drive a sufficient quantity of blood along the relatively. wider arterial channels; the second to acrate the larger proportion of blood carried to them by the more espacious pulmonary artery. The lunga climinote curtome acid in far higher proportion than is the case in older persome. The amount of urea, too, excreted by the kidneys is relatively much greater than it is in the adult. The work required from the different secretory and excretory organs whose united labours go to build up the growing frame may be judged from the fact that within twelve months of its birth the body has increased to three times its original weight. As Dr. Jaroby has observed, the "organs are in constant exertion, or rather overexertion, and all this at the expense of a blood which contains less solid constituents than the blood of the old. Thus the natural oligenia of the ebild is in constant danger of increasing from normal physiological pescoses. The slightest mishap reduces the equilibrium between the capital and the labour to be performed, and the chances for the diminution in the amount of blood in possession of the child are very frequent indeed."

Although the blood of the child is thus relatively poor as compared with that of the shull, a constant inflow of nutrient material enables it to preserve a healthy standard and energy on its functions with success. The

[&]quot;Hemoglobia is the chief constituent of the red companies. In the newly born indust its second is relatively targer than it is in the adult reaching the high releas of \$2.9 per cont. of the whole while constituents (an adult are it is only 10.20 per cont.). This high percentage impolly distributes until it reaches the lowest point at the age of six months. In then shortly rices again.

amount of food recremed by the growing child is far greater proportionately than that required by the fully developed man. According to Dr. Edward Smith, the infant as compared with the adult consumes the times as much carbon and six times as much nitrogen for every pound of his weight. If now, from any cause, either from deficiency in the upply of food, or derangement of the machinery by which food is chiberated and proposed for its purpose of neuroshing and renewing the times the infortalist, the standard of the blood at once sinks below the merage of health, and a state of machine or eligentia (postness of blood) is induced.

The constituents of the blood which are of the present importance is natritive are the albuminoid compounds of the pirson and the red blood corposeles. The albuminoid compounds constitute the material set of which the factors are nourished; the formerglobin of the red corposeles carries the copyen, without which the chemical charges necessary for astrition are impossible. In amenda the blood is impoverished in its allominous constituents, especially in its homoglobin. Therefore, as the amount of iron is in direct proportion to the amount of homoglobin, a classification in the latter means a deficiency in the former; and as the shall office of the homoglobin is that of conveying oxygen to the tissues, the blood in amenda is no longer able efficiently to perform its requiratory and natritive functions.

Conserved of the normal constituents of the blood leads to ansemia. In the infeat—a being who is dependent for health upon a full shilly supply of food—not only serious disease but even the most simple arete demagnment will leave the blood in a state of temporary oligonals. This is usually apply propagate from, for in the healthy child convolutions is short, and the nutritive functions quickly resume their course when the shotale to their proper exercise has disappeared. By ansemia however, is usually meant a more protonged poorness of the blood—a condition in which the symptoms of general debility are alfied with others indicating an imported performance of the bookly functions.

The esuses of such a constition may be divided into two classes, according as to whether they interfere with the continued renovation of the blood

or abbonically increase its reasoningtion.

In the first class are included all the various ecolitions which lander the introduction and elaboration of autritive material. These actual defiescacy of food, each as arises from extreme poverty or willal neglect; as an exitable diet, the stomach being loaded with food which, from its nature or form, is beyond the child's power of direction; functional demographs of the gastro-intestinal canal, owing to which an otherwise unitable food is rendered temporarily imaggreprists—these causes may prevail at all periods of childhood, but are especially frequent during the period of infincy; and the anemia and westing which are so common in headed lubbes can usually be referred to the action of these agencies. To them must be added the influence of imperfect ventilation. Oxygen is as easily tial to healthy tiesus change as are the elements of food themselves, sol = its absence the chemical changes necessary for the renewal and descripment of the times are impossible. Consequently infants confined to close, ill-sentilated rooms are pale and flabby, however carefully their Setary nor he adjusted.

The above causes are also powerful to impede nutrition and promot the improverishment of the blood after the period of industy has goes by The industrie of digestive decomponents, combined or not with sout of fresh sir and exercise, is one of the commenced causes of anomia in later childrensi. The causes which induce impoverishment of the blood are no doubt often complex; but of such as not alone imperfect digestion from extert of the stomach is perhaps to be blunted more often than any other injurious condition. These attacks tend to be repeated, and, as is elsewhere explained, recurring gastric catacrb may induce a degree of pallor and masting which excites the greatest alone in the minds of the parents, and often requires very excelably treatment for its prevention and care (see

Gastrie Catarria).

Again, the disthetic diseases—tubervulous, sendula, and syphilis—often indice a degree of america, ever before any local manifestations of the constitutional disposition are discoverable. In syphilis, also, the disease after apparent recovery, is apt to leave behind it a state of profound maximia, which in many cases is to be attributed, not to the malady, but to the melicution to which the potient has been subjected; for a prolonged course of to-every is an antalling cause of impoverishment of the blood. In reducts, the beginning of the disease is amounted, and its progress accompanied, by a marked degree of maximi, which indicates the unfatures of the blood in such a case to fulfil all the requirements of healthy autration. Of other special general diseases which may lead to dimination in the amount of hemoglobin and so set up are maximally to mentioned the amount of hemoglobin and so set up are maximally to mentioned the amount of hemoglobin and so set up are maximally to mentioned

Disease of special organs concerned in sunguification—the spleen, the lymphatic system, etc.—is, of course, followed by great alteration in the quality of the blood. In extensive anyloid degeneration of these organs, the marked pallor of the patient is one of the most striking symptoms of the disease; and in lymphadenesss the patient is peculiarly pule and

Mostless.

The causes which increase the consumption of the blood are: Profuse accordinges, as an undersa promuterous, homophilis and homorrhagic purpose; severe distribus; chronic purelent discharges, as in cases of chronic empressa with a fishulous opening in the chest-wall; circless of long with distration of brought; albummuria; countain; etc. In this class, too, must be included rapid growth, which is a very frequent source of languar and anomia. It must be remembered, however, that at the age when growth as spt to be most repail the shall is often exposed to other influences which may also tend to set up imposserishment of the blood, such as confinement to close rooms and want of exercise.

Eliopathic anomin (which is sometimes seen in young people) may result from had and insufficient food or other depressing cause acting upon the general system; sometimes it is the consequence of mental shock, as in the case of a boy who was under the care of Sir William Gull, in Guy's Hospital. The had began to suffer shortly after being attacked by a num-

ber of sheep in a field.

Model destroys—In anomia the blood may be morely deficient in amount (oligonous), but it is usually found that there is also a deficiency in the hemoglobin caglobulouis). It is not often that actual diminution in the number of the red corpuscles occurs in codinary symptomatic anomia unless indeed, the impoverishment result from severe hemograpse; but these bodies are said to be considerably reduced in size and in certain forms of anomia it is common to find many corpuscles with a dimmeter graphy below the average. The blood is paler than natural, for in consequence of the decrease in the branegishin it is deficient is iron. Its specific gravity is also lower, and it congulates slowly into a loose clot. As a result of the imperfect nutrition of the tissues which is the consequence of the deteriorated quality of the circulating fluid, a degree of latry degeneration may be found in the heart, the liver, the kidneys and even in the walls of the blood-vessels; also in the voluntary muscles and

the glands of the stomach and intestines.

In idiopathic anomia fatty degeneration of regars is also common observed. There are, necessary, each moses of serous membranes, the mina, etc. The blood is not only diminished in quantity, but the relibioid corporates are also greatly reduced in number, being, secondary to M. Lepine, one-fourth one-sixth, or even one-tenth of their nersed proportions. The white corporates are not more removes than natural at least they are not increased to mything like the degree observed in least they are not increased to mything like the degree observed in least they are not eases of permissions around minute red corporates have been noticed ususuring only one-fourth of their minute size, and making the characteristic bi-counts shape. These bedies, however, appear not to be present in every case.

Symptons.—Pourness of the blood implies an imperfect state of the general nutrition. This is especially the case in young subjects whos blood, as has been already explained, can only carry on its functions efficiently on the condition that it is continually reinfereed by a regular index of properly claborated matritive material. Consequently, in addition to a general pallor, the muscles of such subjects are small and fieldly, their strength is a doced, and their spirits may perhaps be depressed. Larguer and indisposition to enterine are not, however, constant symptoms of anomas in childhood. Boys suffer in this respect much less than grid anomas in childhood. Boys suffer in this respect much less than grid and when free from actual pain or discondont such patients are often lively, and join with as much absorby in beinterous games as if they were perfectly well. Indeed, this cheerfalness and activity may in some case be an important aid to diagnosis (see Tuberculosis).

The first of the skin may be a clear, transporent whiteness. Often however, it is dull and pasty; or may have a laint greenish end similar to the line of chlorous, and the lower epolid may be trial and purplish. The muccus mumbranes are also pullid. Coldness of the extremities is a familiar feature of this condition. In married little girls we are often told that the feet and legs are never worm, and the hands feel cold and charm to the touch. Slight orders is often met with. It may affect the lower cyclid, but less commonly than in the adult. Essembly it is noticed in the feet and ankles, and if the amenin be great, may involve also the basis.

and arms. In rare cases there may be moderate ascates.

Breathlessness and pulpitation on slight exertion sufficiently presoured to cause distress are not common symptoms of amenia in the child, but they are sometimes present. The appetite is often pose, discussfut may be complained of after food, and the bourds are usually contract. As this condition of the blood is in many cases a consequence of gastric demagnment, all the symptoms which are elsewhere enumerated under the blashing of gastric catantle are often to be noticed. Flatalence, expensibly is a sense of phenomenant, and functions or actual syncope may occur has pressure apparents against the heart of a suddenly distouded color. The temperature is subden elevated in an uncomplicated case of simple stamin Pyresia may, however, by present us a consequence of the cause to which the impoverniment of the blood is owing, or to some accidental complication, such as tecthing, estamin, etc.

Children, the subjects of anomia, are usually very nervous and endable, and on examination of the clean we often find the heart acting vicinity. can notice a strong polisation in the neck, and with the hand placed upon the prescordini region can feel a well-marked systolic thrill. As the violence of the cardine action subsides the thrill ceases, and the cardini polisations diminish or disappear. The sounds may then be heard to be ill-accentated, or perhaps manurable. Although mannic cardine marnurs are said to be uncommon in young subjects, it is not mor in cases of pronomned mannin to detect a narrour which ceases to be heard as the patient improves. The number may be at the apex of the heart and is—accompanied by displacement of the spex-best spounds and to the left, as if from dilatation of the left contrible. Basic narrours are, however, the more common phenomen. At the base of the heart the least pressure upon the pulmonary artery from enlarged broached glands will give rise to a load systolic marnurs in that vessel. In many cases we can hear a vessels has in the jugular van in the neck, sometimes, also, in the left imposituate win, behind the upper part of the sternum.

Bleeding from the nose and gums is not rare in amounic children; and in hospital patients peterbies are common in the skin as the result of flealates. From this cause the bedies of poor children are often speckled all

over with little extraorastions of blood.

Pain across the forchead, or sometimes at the back of the head, is often complained of. In infants more serious symptoms may be not with us a consequence of anomia of the beain. The child lies with a pale shounder face, orchids only partially closed, and fontanelle depressed. His extremities feel cold, and a thermometer in the rectum registers a temperature below the normal level. Seen the infant sinks into a state of semi-stayer, and maless aroused by energetic stimulation will probably the. Improve-islament of blood and presentation so profound are upt to be complicated by throughouts of the corebral sinuses or collapse of the lung.

The direction of a case of ordinary simple amonia varies according to the measures which may be taken to remove the cause or causes which are impeding the supply of nutritive material to the blood. If the crosse can be removed, and the child be afterwards fed with judgment and placed under good sanitary conditions, recovery usually follows very quickly.

In afterprise research all the proceding symptoms may be noted. In this form of the disease the anxenia is more profound. The skin is of the release of ivery and the mucous membranes seem perfectly bloodless. Option neuritis may occur with homeorthage into the retma. Epistania is common, and vomiting may be frequent and distressing. The child becomes excessively feeble, and has irregular attacks of pyrexia in which the temperature race to 103° or 104°. Towards the end of the disease, however, elevation of temperature ceases to be noticed; indeed, the builty bent usually falls to a subnormal level. The blood has the characters already described.

Inspection—In every case of anymia it is important with regard to prognosis and treatment that we should exclude serious organic and districted disease. The diagnosis of the many conditions which induce impostrishment of the blend is treated of under their several headings. It may be only stated generally that if the cause his classifices than in some eletions damagement of the digestion, we should institute very searching impury into the family and special history of the patient, particularly with regard to districte tendeuries, and should make careful examination of the various organs.

Idiopathic anomals may be distinguished by the profound deterioration of the blood without increase in the white corpuscies; the absence of discoverable came for the paller and weakness; and the attacks of irregular pyrexis. Leneocythemia is characterised by increase in the proportion of white corposeles, and by enlargement of the spicen or lympintar plants.

Proposes.—In anomia the prognosis depends very much upon the primary disease, if any such can be discovered. If the promises of blood he the sequel of some previous scale illness, or other came which has censed to provail, the patient usually responds well to treatment and quickly recovers under ordinary restrictive measures. In case of idiopublic massais, when the presentation is great, the pallor extresse, and the

temperature high, the child's prospects are very unfavourable.

Toutsteet America must be treated according to the came which has produced it. Impaired notrition and a palled face form in themselves no necessary indication for the employment of dialybeate remoties. The commenced cause of amounts in the child, on has already been stated, is grader-intestinal decrangement. In such a case iron has no power to iroprove the condition of the blood until the hindrance to digestion has been removed. In anismis infants the dictary most be reconstructed upon the principles recommended elsewhere (see Infuntile Atrophy). In other children if, as often happens, the patient be suffering from repeated attacks of gastrie enterth more or less severe, the digestive disturbance must receive careful ireatment, and measures must be adopted to lessen the child's susceptibility to charges of temperature and to protect his senstire body from the cold (see Gastric Cataryli). In all cases plenty of fresh air should be prescribed. The parents should be warned of the necessity of thorough ventilation of nurseries and sleeping-rooms, and the child ment he sent out as much as possible into the open air. It is important, hereever, not to force the putient to take exercise when his feeble powers will not almost of his deriving benefit from neascrilar activity. If his westness be great, the child should go out only in a carriage; and when in-doors care should be taken that his wearied muscles are allowed a sufficience of needful rest. As he mearly, however, he should be urged more and more to exert himself, and in sewere cases a desire for exercise is a valuable sign of improvement.

The child must take plenty of nitrogenous food, and if, as sometimes happens, the appetite is poor with a special dislike to ment, his funcion must be consulted in every way possible. Often a child will cut a small bled, we a lash or a seige, when he turns with disput from bod must menters. Pounded understone ment special upon bread and larder will often be taken, or the ment may be diffused through a most jelly. Eggs milk, and fish are all of service, and a moderate quantity of finite-rota food may be allowed; but the child must be prevented from taking stardy matters to the exclusion of more nutritions articles of diet. When the appetite is poor, it may be often improved by taking three times a flar a strop or two draps of the dilate hydrocyanic axid (P. B.) with five gains of beautomate of sola is infusion of omage pred. The draught on be sweetened with spirits of chloroform, and should be taken as hour before

neste

Iron is only to be resurted to as an addition to the more general measures for restoring nutrition and improving digrestive power, and it took not be given until the disorder of the grature functions has been attended to. Iron acts his more energetically when it is combined with appropriate Often, indeed, until the howels have been well relieved by appropriate purgation the remedy seems to be perfectly insert. Not added, efter plant on iron mixture persecutingly for a length of time unbount any sign of improvement, I have noticed an immediate alteration for the better uses

the ciralybeate has been exchanged for a morning and evening dose of the compound sensa mixture of the British Pharmacoposia. The form in which the iron is given is of little importance. The dose should always be as large a one as the child can bear without discomfort; and if the digestion be in goal onler, the and preparations are to be preferred as a rule to the alliatine ealts. Still, if there be any remains of enturits of the stomach, the ammonio-citrate should be given with an alkali. Most children bear the talplate of iron well. For a child of six years old, five grains of the dried salt may be given in a tenspoudul of glycerine three times a day directly after food. This does may seem rather a large one, but it is rare to find any some of irritation produced by the medicine, and the tenic effect agenthe system is usually rapid and decided. The pyrehleride is also a good form for administration of the remedy. Twenty to thirty drops, well dilated with water and secretened with glycorine, may be taken after each meal. These preparations are for more useful than the various iron ayraps which are community preferred. I have seen many a case of amonia oneing from gastric catarda prolonged by the use of these symps, which promote acality and flatmence and encourage the accessive accretion of

In some children almost all forms of iron som to act as direct irritants to the stomach, inducing indigestion and previations of temper and couning wakefulness at hight. In these cases the dialysed iron is the best term in which the remedy can be administered. Pure chalybeate vaters are also of unvice if the shift can be induced to take them. Their value is, no doubt, enhanced by the fresh country air and exercise by which the change to a chalybeate spring is usually accompanied.

Under the use of fron the red corporeds increme in size and the proportion of homoglobin is therefore largely augmented. The improvement is innormed by a healthier tint in the complexion, an improvement in the appetite, and, if the circle had been previously listless and doll, by greater

freedom and sprightline or in his movements.

Arsenic is another remely of great value in improving the condition of the blood. Children been arrente well. The drug, suless given in very large quantities, is mody a cause of gastric irritation. In fact, as is well known, arsenic in small doses is a valuable solution to the digestive organs and often arrests comiting. As a tonic the county should be given to a child of aix years old as the dose of three or four nations of Fowler's solution directly after food. When the digestion is greatly impaired by repented attacks of gastric cataurh the effect of this medication is often very striking. The arsenic may be asofully combined with a drup or two of the tactors of nex country. Another remedy from which good results have been obtained is phrephorus. This powerful drug may be safely given to a child of six years old in doses of quanto quantum. I have, however, no pursonal experience of its value.

Cal-liver oil is of service as an additional food, and in combination with from wine is a favourite remedy in all forms of mannix in young subjects. The alcohol of the simum ferri is no doubt a valuable therapeous agent. Alcoholic stimulants taken with food help to promote direction, and in many pullid, weakly children have great virtue in niling the return to health. Sound claret, or the St. Raphael turnin wine, diluted with an equal proportion of water, in usually taken readily by the child, and is a

sessible help to other treatment.

Cold-water packing is said to be useful in improving the condition of the blood. Drs. M.P. Jucoby and V. White have reported a series of eases in which ansemia was treated by the regular application of the sold pack followed by massage. The petient was enveloped in a rold wet sizes, thus was covered by a drier sheet, and over all six blanksts were laid and carefully tacked in. After the lapse of an hour the coverings were as around and the skin and muscles were vigorously shampoord. This plan of treatment was combined with rest and careful feeding, and was attended by very good results. It might be employed with advantage in the case as weakly, palled children in whom amorems is a marked feature, for one of its most pronounced effects was found to be an innucliate improvement in the appetite. The induction of skepiness by the pack and massage is usually an indication that the patient is benefiting by the treatment.

CHAPTER IV.

ENLARGEMENT OF THE SPLEEN.

Extranscencer of the spleen is common in early life, and is found in the course of a variety of diseases. The symptom is alluded to incidentally in the descriptions of the various forms of illness in which the phenomenon occurs; but the subject is of sufficient importance in a clinical point of

view to deserve a special chapter for its consideration.

A spheric tensour may be of acute or chronic growth. Acute enlargement is seen in typhoid fever and ague, sometimes in acute tuberculosis, and, it is said, in creebro-spinal fever; also the enlarged sphere found in cases of lenescythemia may be included in this class, for in early life brukhamia often runs in acute course. Rapid increme in size of the organ is also occasionally met with as a result of spheric embolism in the course of alternative undocombitis.

Chronic enlargement of the spacen may be the consequence, and sometimes the only manifestation, of the escheetic condition induced by malarious poison. It occurs in some cases of anytoid degeneration although a spacen so affected is not always increased in size. It is a common symptom of lymphadement, is not infrequently a consequence of strophic cirrhosis of the liver, and may be not with in cases of old-standing disease of the heart. Lastly, it may be due to a simple hyperplasia. Hypertrophy of the sphere may occur in rickets and sophilis, especially the latter; but is also found in cases where syphilis may be postgrely excluded, and in cases, too, where there is no reason to suspect any malarious origin of the corelling.

In the child a spleen is not necessarily diseased because its lower edge is within reach of the fuger. The healthy organ is sometimes pushed down, so as to be felt. This displacement may seem in cases of copions effusion into the left plears, and is common in rickets where there is much retrac-

tion of the ribs

In determining the existence of enlargement of the spleen it is not sufficient merely to ascertain the position of the lower edge; for considerable endling of the organ may be present although its inferior border does not project below the margin of the ribe. In the cichi the spleen often extends hashwards and aparants as well as dominantly, and may reach posteriorly to the spinal ectiman. By percussion in such cases we can often detect duliness in the smills reaching appeards as far as the fourth or fifth rib, and in the back extending as fer appearls as the inferior angle of the suspain. In all cases where a splente tumour is suspected the six of the organ should be estimated by percussion as well as palpation. When the lower part of the organ projects below the ribs into the ablomen it is easily felt by laying the hand that upon the belly and pressing graffly with the finger tips. That the welling thus discovered is due to increase in size of the spleen is indicated by the superficial position of the tumour by the comparative thinness.

of its inner border, and by the notch which can often be distinctly permiss.

by the finger:

An enlarged spleen is usually firm and resisting to the touch, especially
if the enlargement is a chronic process. In typical favor, however, is
substance of the swellen organ is unastually soft, and on this account our
sometimes be only felt by a practised finger. In nexts forms of smalling
the increase in size is accompanied by some tenderness on pressure. In
chronic enlargements there may be also tenderness, but this is commonly
due in such cases to the presence of local peritonius.

In the present chapter it will be unnecessary to refer again to all the forms of splenic tumour met with in the child. It will be sufficient to consider the chronic enlargement which occurs as a consequence of a simple

hyperplasis of the organ.

Susple Hyperplants of the sphere is a not mecommon condition in pafancy and early childhood. Often the patient may been traces of inherent syphilis or show some symptoms of rickets; but this is not always the omand sometimes no sign of districtic disease or constitutional weakness is anywhere to be detected. When the animpensant is thus present in a child of apparently healthy constitution its endogy as difficult to establish. In some of the cases which have come under my notice the enlargement has been proceeded by gastro-intestinal decaugement. In others the child has been subject to frequent attacks of pulmonary catarris. Sometimes the spheric turnour was first discovered shortly after an attack of member; but it is difficult to admit a connection between these derangements and the spheric hyperplants.

Methof Justicey.—When enlarged from simple hypertrophy the splen retains its normal shape. It is firm and smooth; its expense is thickend; and a section shows a pule red or reddish pumple surface, with the Mulpiphin

bodies more or less distinctly visible.

Symptoms.—The existence of enlargement of the spleen is at once indicated by the complexion of the child. The whole body—both skin and
nurcous membranes—is pale and bloodless; but the first of the face is
circumsteristic. It has something of the colour of ivery or war, with the
solidition of a faint olive cost which is not found in order of these substance.
Often we notice a currons transparency, especially about the month and
cyclids. The belly is large and the spleen can be readily felt as a smooth
firm mass. If the increase in size is great, the tensour projects largerally
across the abdomen, and presents on its inner surface the about only
broken towards the modelle by the notels. Density the regan projects up
words and to the back as well as downwards, and its limits in these directions can be estimated by prevention. Sometimes it is freely normalized
the hands, and it always descends when a deep breath is taken rising spin
in expiration.

Although pale and bloodless the child has often a considerable mosts of flesh, and is greatly wasted only in exceptional cases. He is, however, weak and languid. The bowels are often irritable, and in children of thre or four years old the appetite is experience and perhaps percented, so that the patient shows a consona tendency to sat cinders, chalk, shats-peril, and other gritty or even disgusting substances. (Edema of the lown limbs and cyclids is sometimes noticed, and petechie and bruneling patches may be present in the skin. There is also a marked tending in

equistration.

On examination of the blood the red corpuscles form realcast in the issual manner; but tested by the harmeytemeter their number is found to be reduced considerably below the normal average, and the white estis are often appreciably increased, although soldens to the degree observed in cases of feurocythemia. Sometimes both red and white corporates are

irregular in shape.

A little boy, aged one year and seven months, was said to have been born strong and healthy. He was the youngest of four, his elders being all strong and well. He did not smalle after birth, nor were any spots noticed at that time on the buttocks. Until the age of ten months the child socited no munety, but he then began to get pale and to lose flesh

He had been labely very restless at night.

On examination the infant was seen to be very anomic over the whole body, and his complexion was of a dull yellowish-white, especially on the abovice. He was thin although not emaciated, and his expression showed no sign of distress. The child was the subject of slight rickets, he had only two teeth, his closet was a little flattened intensity, and there was insignificant enlargement of the opiphyses of the long bones. His legs were small, and he had never been able to walk. The foaturelle was about half an inch is dissecter. The frontal bone was rather prominent on each side of the middle line, and there was some inconsiderable thickening of the

parietal banes. Cranio-takes was well marked.

The belly was very fall and prominent, especially on the left side. As the rhild by on his back, the lower border of the splern was found to reach to the left crest of the ilium, and the inner nargus passed obliquely downwards from beneath the ribs to within two fagors'-breadth of the right materior superior spine of the dium. The notch was felt just above the umbilions. The organ was freely movable, descending appreciably in inspiration, and it could be pushed speareds until its lower border was on a level with the most. Its substance was from and hard, and its surface amouth. The upper bonler, estimated by percussion, rose to within two impore-breadth of the inferior angle of the left scapuls. The edge of the liver was one inch below the costal margin. A small nodnie could be felt on each side behind the raums of the lower juw; otherwise there was no enlargement of the tymphatic glands. A little blue mark, like a bruise, was noticed on the forehead, and there was another on the back, but there were no petechie present on the skin. There was no selects of the logs. The shild's appetite was good, and he was not enfering from digostive disturbuses. An examination of the blood showed no excess of white cor-Pulcies.

Children in whom great enlargement of the spleen exists are very subject to gratic-intestinal troubles, and in consequence of their weakness are frequent sufficiers from every form of catarrial decargement. In fact, they usually die from a severe distribute or an attack of broughtitis or enturial paramenia. If they escape these accidents recovery is not impossible. We sometimes find the spleen gradually diminish in size and eventu-

ally return to its normal dimensions.

A little boy, aged twelve months, with no teeth, was brought to me, as he was said to be weakly. The child had been nured by hand, and was subject to attacks of sickness. A short time previously, during a visit to the senide, he had been jumiliced. There was none slight enlargement of the ends of the hones and his fouturelle was large. The shild could not shard, but liked to be danced about and played with. His complexion was excessively pale, with a faint olive cast. The abdomen was full, and the spleen, which was large and hard, reached to the level of the panel. The child was put upon a mutritious sliet, and was ordered cod-liver of and plenty of fresh air. In five mostles' time he had out ten teeth, and although still pole, had a better complexion. Seven months afterwards (twelve from his first visit) he had sixteen teeth and could run about will. His spleen was now greatly reduced in size, being just perceptible below the ribs. His complexion was good and he seemed perfectly well.

In this case to special medication was afteropted with the object of reducing the size of the spicer. The general weakly state was improved by fresh air and a suitable dietary, and coldiner oil was given on account of the signs of incipent rickets. Moreover, further intestinal estarchs were prevented by a carefully applied abdominal bendage. The hope that under these altered conditions the size of the spicen would diminish as the

general health improved was perfectly justified by the event.

The complexion of the child is very characteristic. Indeed, in a young child extreme amount should always direct attention to the sphere. When a hard lamp is discovered in the left side of the abdomen, it is may to assertian if the welling is due to splenic enlargement. The superficial position of the tennour, its passing aparents betweeth the rile; its less tennoled inner edge, with a perceptible notch; the free mobility of the mass, which can be present upwards by the fingers, and may be seen to move in correspondence with respectation, descending when a deep break is drawn, and rising again with the displangers as the langs contract—all these eighs lone little doubt of the mature of the calargement. That the tamedaction is a simple hypertrophy, and is not due to hyperandensum or learneysthemia, is inferrest from the absence of lymphalic enlargements in the former case, and in the latter from the small increase in notables of the white corpuseies of the blood.

Proposals.—The prospects of the child in simple hyperphoia of the sphera depend in a great measure upon the case bestowed upon how, and the watchfulness with which he is guarded from intercurrent alberta. The prognosis is therefore much more favourable in the case of children of well-lo-do parants than in those belonging to the class by which or hospitals are supplied. If the patient show marked signs of rickets or syphia, a cure can hardly be anticipated; but if the signs of rickets are only moderately developed, or the syphilitic origin of the calargement is nearly a matter of suspicion, the child, under favourable conditions, has a fair cluster of recovery. Any considerable excess of white corposches in the blood must greatly diminish our lopes of a successful termination to the

case.

Thestweet.—In the treatment of cases of simple hypertrophy of the spleen we must not allow our attention to be directed too exclusively to the swellen organ, to the neglect of the general health. Much injury is often stone in these cases by long courses of mercury or indicated potensium, and the energetic application of negonical outments to the left

hypochendrium.

Our first ours should be to attend to any gastro-intestinal derangement which may be interfering with the patient's notration. Vomiting must be stopped, locesness of the bowels must be arrested, and the diet sent be arranged so as to aspidy the most ample nourishment with the least us upon the digestive powers. Most of the patients are weakly children under two years of age. They must therefore be disted upon the proceptes recommended in the chapter on Infantile Atrophy. Milk yell of egg. Mellin's food, Cimpman's baked flour, broths, thin bread and butter, and, if the shald is eighteen months old, raw or underdone mutton, pounded in a mortar and strained through a fine move, should be given. Watchfollows must be exercised that the size and frequency of the meals are laly proportioned to the digestive capabilities of the patient; and in the case of milk, in particular, it is important, by exceful inspection of the stools, to satisfy ourselves that curd is not passing away in large quantities by the bowels. If this be the case, milk should not be given pure as a drink, but be always maxed with buriey-water or other thickening material. so as to aid its digestion by insuring a fine division of the curd. Three or four grains of pepsine, given just before the three principal meals, will be of great assistance in these cases.

Having attended to the diet, attention should next be directed to the elections of the shill. These petients, especially if they show my signs of rickets, are very sensitive to changes of temperature, and it is of extreme importance that they should be thoroughly protected from chills. The belly should be covered with a broad fluinel belt. This must be applied carefully, so as to cover the whole of the abdomen, from the hips to the waist, and should fit closely to the skin. In cold or changeable weather the child's logs and thighs should be protected by long woulier stockings. and all his underricthing should be of famuel or wool. So protected, the patient must be taken out of doors as much as possible, and in suitable weather should pass the greater part of the day out of the house. Before be leaves home, his feet should be examined to see that they are perfectly warm; and in cold weather it is best to pack the child in a perambulator, so that his back and sides may be properly supported. His feet can then rest upon a hot-water bottle. If the putient be sent to a good senside air, the effect of these measures is often very marked.

For medicine, valess there are positive signs of syphilis, mercurials and other lowering drugs should not be suppleyed. The best treatment consists in the use of iron in full doses and cod-liver oil; but this treatment must not be begun until the bowels have been put into a healthy state by appropriate remodies. For a child of sighteen mouths of age two or three grains of the ensiceated sulphate of iron may be given in giscircia; or ten drops of the fineture of perchiceide of iron may be administired, freely diluted with water and sweetened with giveerine, three times a day after meals. Quining is also of service, and may be given in conjunction with the iron. The value of alcohol must not be forgotten. A troppounded of the St. Raphael taurin wine, given two or three times a day, diluted with an equal quantity of unter, is an important addition to

the treatment.

I have employed frictious with moreurial salves to the splenic region. and som them used by others, but have never noticed any special benefit from this proceeding. As a rule, it has seemed to me that the ansenix has been intensified by this meuns, and that the size of the spleen has increased rather than diminished under the use of the drug. Unless the employment of the remedy is distinctly indicated by clear endence of the presence of syphilis in the child, this method of treatment seems likely to be attended with a bad rather than a good result.

CHAPTER V.

HARMOPHILIA.

Hardonnia is a congenital tendency to bleeding which manifeds that shortly after birth and lasts the life of the patient. The hardonings of curs either spontaneously or upon slight provocation, and can only be arrested with great difficulty. The subjects of the disease also exhibit a curious tendency to obstante aveilings of the joints, which are often spoken of as "rhounstiem." A temporary disposition to harmonings, such as is sometimes left after certain diseases, does not constitute hand philis. The true disease dates from birth, or appears shortly after it is always seen in shaldhood, and presists, as a rule, to the very end of its

Greaters.—Hemophilia, if not irrearmbly herolitary, shows a singular tendency to herolitary transmission. The prodicity numbers itself non frequently in the male than in the female offspring; but the female, if themselves exampt from this pseuliarity, are still capable of transmiting the disease to their children. It is, indeed, a curious test that the transmission of the tendency to the child is seen more commonly in resembles the patient, whether make or female, although spring from a bring of bleeders, is individually free from the hemorrhagic disposition. It is not to find a further transmit the disease to his child if he is himself a suffere. In the majority of cases the unfortunate inheritance is derived from the mother, who has probably enouged.

In a family subject to this tendency all the male elibbre may probleoders. Sometimes, however, one or more samps. Dr. Wicklain Legis of opinion that when transmission is only partial the first-hom are use exempt than the others. The disease is found in all countries and all coditions of life. The Hebrew race is said to be pseudiarly liable to it.

Morbid Anatomy. - In cases of death from harmophilia little is found in explain the nature of the disease. The body is usually blanched from his of blood, but the organs, especially the heart and hirge ussels, present as appearance of disease. No change is discovered in the blood, and the viscely seldous present my afterations recognisable by the morroscope. In some cases, indeed, a partial fatty degeneration of the lining numbrate of the arterior has been observed; but this is probably the consequence of the anxions. Petceline in the skin, and bruise-like patches from subestsneons extracusation, may be found; and sometimes large collections of blood have been met with. Sir W. Jenner has reported the case of a loy. aged thirteen years, in whom an enormous extravasation of blood up decovered beneath the fascia of the right thigh. The swelling of the jostsappears to be due to extramaction of blood into the articulations. It is east reported by M. Poncet, on opening the knee-joint, which had been obstinutely swellen and painful during life, all the tissues of the artischtion were found to be stained with blood. At the carcumference to be sizes were shocolate-coloured; the articular surfaces were red and supernated with blood; and the cartileges were the sent of advanced belong such as have been described by Clurcot as characteristic of chronic phenmatism. Microscopic commination revealed in the solutions of the tissues yellow granules, irregular or regulated, and of variable size, pigment granules, and fat granules. Other joints in the same subject showed similar below.

Symptoms.—There is nothing in the look of the child at birth to indicate any peruliarity of constitution. Nor in after years, unless the individual be actually suffering from less of blood or discuss of the joints, is there mysting in his appearance to distinguish him from mother without the same tendency to blood. The child may be fair or dark, tall or short, of robust frame or of cleuder build. As a rule, he looks healthy, and his

intellectual capacity is above the average.

It is early before the end of the first twelve months of life that any sign is noticed of the housenhage disposition. Bleeding addent occurs at the time of separation of the mobilical cord, or during the operation of surcination; and it is not until the infant is able to crawl or walk, and thus becomes exposed to injuries from falls or other violence, that his constitutional pseudarity can be recognised. Sometimes, however, evidence of the disease is postponed until later. Bleeding may not be noticed until the second crop of teeth begins to make its appearance at about the sixth year. It has even been known to come on for the first time at a later period; but is early delayed till after puberty.

The propensity to bleed varies greatly in its intensity in different subjects. In the lowest degree it may show itself merely in the shape of exchemens in the skin. In a higher grade the patient may complain of spentaneous homographs from the macous membranes. In its most pronounced form a tendency to every kind of bleeding is observed. The macous membranes may pour out blood without obvious cause; slight adjuries may give rise to copious extravasation into the tissues; peterline may appear in the skin; and obstinate and painful overlings may attack

The homoerhage usually occurs at a time when the patient appears to be in musually good health, for it is at these times that there is a plethorn of the smaller woods. The bleeding may be preceded by signs of excitment or irritability of temper, and it is said that there is sharpening of

the senses of hearing and of eight. Epileptiform consultators have been noticed in one case by Botor.

If the bleeding be spontaneous, it occurs in the child usually from the nose; but may be also noticed from the inside of the cheeks and lips, and from the gams, especially during dentition. In less common cases blood is also possed out from the mucous nembrane of the stormes and boreels, and may be comitted up or discharged by stool. As a rule, the younger the child the more likely is the homorrhage to come from the mose semonth. It is only towards pulserly that homotenesis or notices becomes common. Bend homorrhage is one. Once started, the loss of blood may be continuous and copours, so as to be arrested with the greatest difficulty; so may cause for a time and then return. Sometimes become from one some is quickly followed by a similar effector from mother, until the patient dies worn out by the constant discharge. When blooding from one source alone ends in death, the homorrhage occurs usually from the nose.

In addition to the spontaneous homeorthogos, slight wounds or Idous any produce a copious effector. Little cuts or scratches bleed obstinately; slight blows upon the body may be a cause of serious extravasation; and in certain subjects even the rising of a blister may fill the bleb with blood instead of seeson. In such patients the extraction of a tooth, the upplestion of a leach, or the prick of a pin may induce bleeding which for a long time resists the most powerful styptics, and may even electroy the ale of the patient in spite of the most energetic measures for its suppression

The tendency to bleed, even in the case of the same child, is subject to enrious variation. A slight injury which at one time gives rise to conside hamorrhage, at another is followed by no ill consequences; and a child in whom repeated hemorrhages from the ness or mouth are a corporal anxiety may bear the removal of a tooth without unusual bleeday following the operation. Thus Dr. Wickham Legg has reported the case of a boy, aged eight years, who was subject to frequent hemorrhages from the ness and gums. This child could bear the extraction of a tooth or a rot on the finger without much loss of blood.

In all cases the source of the bleeding is capillary. The homorphysical as a constant coming, which may last for hours, days, or weeks, and it is astonishing to note the enormous quantity of blood which may be thus poured out by the most trifling wound. In the case of transmit-liberaling the homorphysical neutral begins some hours after the inflation of the injury. It often does not case until the patient becomes faint and even then in liable to renewal when consciousness returns. By this means the child may be reduced to a state of profound ansemin, and only slowly

regrins his colour and strength.

The peterbir and subcutaneous homorrhages which occur is hamsphilis are very similar to those noticed in cases of purposs. They are one seen on the buttocks and limbs of infant blooders, but the face usually secapes. Triffing blows may produce repinus efficients. In some case the blood infillances extensively through the areolar tissue of a limb, and death way even cases from this inward blooding. In other cases circumscribed collections of blood may be noticed, forming tousours of various sores.

One of the most currous features of the disease in its higher grade is the joint affection to which these patients are so subject. The articultions attacked are usually the larger ones, and in the majority of cases it is the knee which suffers; but the milder and kips, the shoulders and elbows are liable to be affected. The joint becomes swollen and tender, and the savelling usually increases until the ends of the bones can no longer be fort. It is accompanied by pain which is increased by novement and there is a rise of temperature. Sometimes fluctuation may be detected The serolling is said to be also, in some cases, to a sample efficient into the joint; but it is more commonly the consequence of articular Lemontheye It may occur either spontaneously or us the result of a triffing injury. To symptota persists for a variable time, and it may be mouths before the joint returns to its ordinary dimensions. Several joints may be attacked in anoremion, or the joint affection may alternate with some form of mills hymorrhage. Blood hymours sometimes rise on the sides of a diseased joint. Thus M. Pouret has recorded the case of a boy, aged sisteen, whree right knee had been prinful, stiff, and excillen for two years. Some was previously a small swelling had formed on the inner side of the law-This had turned black, and then had burst, giving rise to obstinute become thage. The boy was very subject to profuse bleedings from the torand eventually died in consequence of repeated homorrhage from words made by the application of the actual cantery to the diseased joint.

In addition to the articular affection, pains may be complained of it the limbs about the joints, although unaccompanied by swelling. These may be so severe as to interfere with exercise. The subjects of homopicits also suffer much from cold, and the homorrhage may be determined

by exposure to weather.

It might, perhaps, he expected that the existence of the constitutional tendancy would influence unfavourably the course of the consthemate and other intercurrent discusses to which childhood is liable; but this does not appear to be the case. Measles, searlet force, and whooping-rough are said to run their normal course in such subjects without manifesting exceptionally unfavourable symptoms; and although the patients are prone to chest affections, such as plearing and paramonia, these discuses are not attended with special dangers. There is no pseculiar liability to phthois; but slorgling and gargers are said to be not uncommon accidents in the course of wounds and traomatic injuries generally.

Dispussio. In pronounced cases the detection of the homographic tendency is a matter of little difficulty. The history of repeated bleelings, the habitual appearance of bruises upon alight injury, and the affection of the joints, furnish sufficient evidence of the existence of this constitutional permissinty. In cases where the tendency is present in a less degree the diagnosis is not so easy. Repeated spiriture is often seen in children whose health in other respects is perfectly satisfactory; and the occurrence of spontaneous hamorrhage from this source is therefore of no value in establishing the existence of hemophilia. Again, profuse and even fatal bleeding from the storage and bowels may be met with in new-born infants. The cause of homorrhage in the newly-born is often obscure; and in the absence of any evident reason for its occurrence some observers have attributed it to a special hemorrhagis tendency existing in the in-This may be so; but the cases differ from homophilis in the fact that where life is preserved no special pronensus to blooding is manifested in after years (see page 655). So, also, in homorrhagic purpura profuse bleeding any occur from all the mucous surfaces and into the tissues ; but the disposition to bleed is here, also, a temporary infirmity which passes off and is completely recovered from.

In all cases of true haveophilis careful inquiry will discover the existence of a hereditary tendency, especially on the side of the mother, and also in most cases a disposition on the part of the child houself to bleed

professely upon slight provocation.

The nature of the joint affection can only be discovered by establishing the existence of the hemorrhagic tendency; for there is nothing in the character of the joint symptoms to distinguish the evelling from that pro-

duced by other causes.

Proposite.—Hamophilia is a disease which is accompanied by serious danger to life. The exhaustion produced by repeated hamorrhages is so great that comparatively few of the patients reach adult years. Out of one hundred and fifty-two boys, the subjects of the hamorrhagic disposition, Grantidier found that only nineteen attained the age of tweaty-one, and that more than half of the number died before completing their severals year. Death assually occurs from hamorrhage, but some kinds of bleeding appear to be more unfavourable than others. Thus hamorrhage after saturation of a tooth is found to be especially dangerous; obstitute spiraxic is also to be viewed with grave apprehension; indeed, to these two varieties of bleeding a large proportion of the deaths may be stiributed.

Children are said rarely to die from a first bleeding, and one profuse gush which cames fainting is thought to be more favourable than a slower and persistent cooling. Still, in any case we should speak very continuely of the future, whether immediate or remote; for if the tendency to pronounced, the boy's chances of growing into manhood are not pruning

Theremost—In cases of hamophilis great over should be taken to proteet the child from all forms of injury. Vaccination has been solden by howed by dangerous bleeding; but the operation should be performed as Dr. Wickhous Large suggests, rather by scarification than by purchase Surgical operations, even of the simplest kind, should be undertaken only as a lint resource, and the extraction of a tooth should be expressly for bidden.

Constipution is likely to be particularly injurious to the subjects of homoglaids. Therefore it is very important to see that the bowds are properly releved. The child should take a dose of gray provide with july pine every two or three weeks, followed by a saline; and the latter, in the shape of Dinneford's magnesia or the granular carate of suggestia, may be given regularly every week. The distant should include a good properties of vegetables; and the white ments and fish are preferable to to under beef and matters. In case any of the premonitory symptoms of kenominage are observed, all ments should be at once forbidden, and a mercural parge be administered, followed by a saline. Regular exercise should be enforced; but beisterous genes, such as cricket, foot-ball, etc., can only

be indulted in at a great risk.

When blooding occurs, the treatment will depend upon the source of the homorrhage. If this le at the surface, so that pressure can be hugget to bear upon the part, as in the case of a cut or other injure, the application of a graduated compress, after exceful eleming of the world, should In had recourse to. The local use of perchloride of iron, ritrate of ging, and other styptics, mel of ice, is also recommonded. In cases of sports neous homogrange astringents applied locally are our chief resource. In epistoris the rusal passages must be first cleared out by injectious of sesold water. Afterwards the solution of perchloride of iron (of the strength of one drachm of the strong solution to an owner of unter) should be in perted or sprayed into the nostrils. If this method fail, the interior and posterior name must be plugged. If the hemserhage occur from the socket of a tooth, crystals of the perchloride of iron applied locally will sometimes arrest it; or the absolus may be packed with a graduated was press scaled in the iron solution. Bleeding from the baseds usually passe from the lower part of the rection, and can often be stannaked by injections of the iron solution (one or two directors to the owner). Bleeting from the gums is usually stopped by washes of tamin, alum, or rhstury, and the child should be prevented if possible from encouraging the blesh-ing by encking his game. Iron and other steptics given internally seen to be of small value; but ergot is stated to have proved of service.

The subjects of this tendency should be warmly dressed and carefully protected from the cold. If possible their residence should be elsewhere than in cold, dearp situations. The joint affection must be treated by profect rest, and cold or warm applications as are most agreeable to the putent. At a late stage blisters to the joint are said to be useful, but counter-an-

tation with the actual coutery is to be avoided.

CHAPTER VI.

PURPURA.

Program is a discussed condition in which extramusations of blood take place into the skin and the substance of the viscous, and blood may be poured out from many numbers surfaces and into the serous cavides. When the extravasation takes place into the skin it is called purpose simples; when the beamorthaps. Many number forms of illness, febrile and other, are accompanied by the ready escape of blood from the vessels. In the malignant forms of sacristins, messles, small-pec, typins fover, and diphtheria purpose spets and harmorrhapes are seldom absent; and the some symptom is found in scarry, and is occasionally met with in cases of Bright's disease, corrhosis of the liver, innecessfully met with in cases of the liver. Strictly speaking, however, the term propose is applied to a temporary homorrhapis tendency unconnected with any of the next specific diseases and in which no merical condition of organs, other than that due to the

extramation and its consequences, our be discoursed.

Causation.—Purpura is common in children, and appears in many cases to be a consequence of insunitary conditions and insufficient food. Still, that the discuss may arise from other causes is shown by the well-goorished state and robust appearance of many of the subjects of this disorder. The hamorringic tendency is sometimes seen to come on quite anddenly without apparent cause in one member of a healthy family, the others who appear to be living in precisely the same conditions escaping altogether. Thus, a robust little boy, aged aix years, one of eight healthy children and born of healthy parents without any history of homographic tendency, and nimself been strong and well all his life with the exception of attacks of measles and whooping-cough during his second year. The boy suddenly begon to bleed from the eyes, the nose, and the month, and soon developed all the symptoms of severe honorrhagic purpora. In cases such as this the occurrence of the discuse can never be traced to error in thet or insufficiency of vegetable food or malk. Sometimes purjears may come on as a sequel of an exhausting disease, such as scarlating and typical fever, and I have known it to occur after a severe attack of croupous pneumania. It is said, too, to be occasionally induced by the administration of iodide of potassium in weakly subjects, especially in those labouring under valvular disease of the heart. In many cases, however, no anteredent condition of any kind can be discovered capable of explaining the sudden propusity to bleed.

Marked disarousy. In the skin the homosphage occurs in the rete noncount and the papellary layer of the cutis, and also into the subcutaneous tissue. The submiscous tissue is also often the sent of extraorantica, and sometimes much blood is powerf out from the surface of the nuncous wembrane. In this way, after death purple spots and extraoranticas of various sizes may be discovered beneath the naneous membrane of the month, gallet, stomach, and intestine both small and large. So also the arrows surfaces and subscrops tissues may suffer in the same may, and more or less repions extravantion may be found in the second cavities—the picture, the peritoneous, and the pericardinus. The substant of organs is not undrequently the sout of hemorrhage, and clots may form in the lungs, the heart, the kidneys, etc. Fatal apoplexy may also reak from this cause.

Pure purpose does not lead to disease of internal organs. If the mannia he extreme, falty degeneration of the nursualar fibres of the lean and a similar condition of other viscens may be found; but this is a consequence of the impoterished state of the blood induced by repeated homorhages, and is only a secondary consequence of the homorrhagic business. Anyloid and other degenerations found in the liver and observation has been appeared by a common cause. When the looked upon us a result with the purpose of a common cause. When bleeding is profuse and repeated the blood undergoes the changes indent to an advanced stage of anxenia, the amount of homoglobin is lowrized, and the red corposeles are dimunished in number as well as reduced in size. Unless the blood be impoverished by homorrhages, no morbil change in the fluid can be detected.

With regard to the pathelogy of the discuss, the first has been appealed to lie in sense alteration of mutrition in the conta of the capillaries and smaller blood-vessels, so that they supture readily under the present of the blood. This explanation may be a sufficient one when the papear occurs in a cachestic subject, but it cannot apply to the sudden tendency to been certained soften manifested by a child whose health had been previously satisfactory. Hencels suggests that in these cases the cause of the efficient may be a vest-motor neutrons which gives rise to stasts in the blood, rupture of the wall of the capillaries, or migration of the blood

globules from paraletic dilatation of the smallest wessels.

Symptomic.—The spots may appear quite sublents without previous signs of ill-health. Often, however, they are preceded by more or last aching of the limbs, slight feveralmess, thirst, and symptoms of indiges tion. The child Ima no appetite and is unwilling to exert himself, crying if obliged to walk, and complaining constantly of feeling tired. In was cases the appearance of the purports risk follows an attack of vonting and diarrhosa. The spots are encular and of a brick-red or deep purple colour. They are not elevated above the surface, and pressure does not rame them to disappear. In size they vary from a pin's head to the dismeter of half an meh or more, and their outline is distinctly defined They may be so closely set us to be confluent. This is especially consum about the instep and mikles. Often they are accompanied by marks like bruises due to extraorasation into the subcataneous tissue. These are bluish discolourations without defined margin, and may be accompated by some swelling. They appear to be experiment the consequence of insignificant injuries, for a gentle pinch or feeble blow will produce then The purports spots come out in successive crops, and each, after going through the eminary changes of colour permiar to such Ismountages disappears in the course of a few days. At times the skin will be found to be nearly clear; then another crop is discovered and the surface it thickly studded with them as before. They are usually most numerous on the limbs, but are found besides on the trunk, and sometimes, slibength rursly, on the face. Mixed up with the true purparie spots may be whends of articaria, little potches of crythema populatum or crythema

nodosum, and occasionally blebs arise filled with bloody scrum. Inspection of the mouth will also often discover minute hymorrhagic extraosations into the mucous membrane of the lips and checks.

In the more acute form of the disease, when the peneral health has been preciously satisfactory, the purpose spots may be accompanied by odensatous excling. The limbs then feel unusually form and full and pit on pressure. Unless hismorrhage occurs from the urinary passages there

te no albuminusta. A healthy little girl, aged five years, began to lose her appetite and complain of pains in the legs and kness. She was unwilling to take exercise, and after volking for a short distance would say that her legsacted and ask to be carried up-stairs. These symptoms continued for two or three weeks without improvement. The child then became slightly feserish, her knees swelled, and purparie spots appeared on the lower part of the body and on the legs. When seen on the sixth day the child looked well in the face and seemed cheerful. The spots were numerous on the lower limbs and varied from a pen to a fourpenny hit in size. They were brickered in colour with a well-defined outline, and did not disappear on pressure with the finger. In addition to these spots there were larger patches, like bruises, of a greenish or yellowish colour. Both legs were uniformly smallen and felt very firm. They pitted distinctly on firm pressure. The knees were not smallen or tender at this time, but were said to have been very tender and painful. The skin covering the poplibral spaces was much cochymosol. There had been no bleeding from the nose or other mucous tract. The heart-sounds were healthy. There was no albumen in the urine.

The pains in the limbs usually continue after the spots have appeared, but subside in a few days. A return of the pain is sometimes found to precede the cruption of each successive crop of spots. The number of the crops varies. Sometimes there is only one. Usually, however, they are more numerous. Exercise seems to encourage the hauncribages, and rest is therefore an important element in the treatment. In the simple

form the disease is usually at an end in from one to three weeks.

In simple purposes the extratasations are limited to the skin, but in the more service form, called homorrhope purport, effusions of blood are noticed from other parts. The nose bloods and the hemorrhage may be ar cogious that it has to be arrested by arrehanced areans. Blood may be also discharged from the syelids, the gums, the ears, the lungs, the stemach, the bowds, and the kidneys. Hamaturia is a common consequence of hemorrhagic purpurs, and the amount of blood may be so express from this source that the urine passed is of a deep red colour. The renal Lagrace hage often occurs in one gush and then ceases entirely for a time, so that two successive discharges from the bladder may be of quite different characters—the first blood red, the second perfectly limped and normal in appearance. Still, even if there he no naked eve signs of blood in the water, the migroscope will sometimes detect red corpuscles in the deposit. Homorrhage from the bowels is seen as black clots at the bottom of the chamber-pan. It is rarely regions. Its appearance may be perceded by severe abdominal poin, which ceases when the blood is discharged from the bowels. Sometimes colicky pain occurs without being followed by intestinal hamorrhage,

When pains in the joints are complained of there may be some tenderness and considerable swelling. This symptom is often spoken of as "sheumatism," and the disease is then called purpose rheasuries. It scens probable, however, that sometimes, at any rate, the lesion is the not to rhounastic inflammation but to homorrhage into or around the joint. If it arise from this cause the articular affection is more chrome than a charmatic joint lesion, and remains confined to the part first attached.

There is no necessary discolouration of the skin.

During the progress of the complaint the general symptoms are often indefinite. The appetite may be good or more or less impaired. A cartain amount of thirst is usually to be noticed. The liver may become much swollen from compestion, and the boxels are often confined. Usually, until the loss of blood has preshood amount, the child complains only at acting and feeling tired. The temperature is often normal, but a metimes there is inegular pyreats. The febrile heat does not, however, appear to bear any relation to the homorrhage. I have not found it to precede or follow in any regular manner the flow of blood.

A robust little boy, six years of age, was in his usual health sizes he suddenly began to bleed from the eyes, now, and mouth. During the next mouth he continued to bleed every morning from the guns, and on those separate consistent but explose attacks of hemorrhage from the gyrs and trose. An accidental cut on the fuger also bleed profusely for two hears. During all this mouth the boy was very thirsty, drinking my field by

could get, even dirty water.

On admission into the East London Children's Hospital the child scenned to be well nourished and had a bealthy appearance, with a fair amount of edear in his face. His guess were not spongy. His face body, and hinds were thickly covered with purparie spets of a brownsh-rol colour, which did not field on pressure. There were in addition large bruises on the right arm, the trunk, and the left thigh. There was no enlargement of the liver or spleen. The urine had a density of 1929. It was clear, without sediment, and contained no albumen. The heart best in the lifth interspace in the alppic line. At the spex the sounds were healthy but muffled, and a lond amount murmur was heard at the base.

While in the hospital the patient had frequent hasmorrhages from the most, the mouth the bowels, the hidneys, and into the skin. On one occasion be repeatedly retched and vomited large black clots of blood. He also complicated into hid observable pain, and passed large quantities of black blood from the bowels. This may, of course, have been blood poured out by the moul fooce and weallowed; but the homotrinare was at any rate copious, and emend a marked blanching of the skin and most feetbeness and langues. The boy's temperature world considerably during his illness. He had irregular attacks of fever during which the temperature would rise to 101° or even higher, but the pyrous did not drawn procede the gust of blood. If, however, there was fever when the hamotrings occurred, the first effect of the flow was to reduce the bodily but to a subpormal level.

The boy was treated first with iron which seemed to have no effect upon the formorrhages; then with sperients, which produced at first a marked improvement; later with iron and arsenic combined, under which

he became supidly convalencent.

When uncerns occurs, the ordinary signs of detaility are noticed. The chibl is pulled and feeble. He is restless and complains of hondacks and his pulse is frequent and irritable. A systolic marmor can usually be defected at the base of the heart, and a lond werous hum is not unconnously heard at the upper part of the sternum.

There may be some orderns of the ankles, and even of the limbs and

fase. In very severs forms of the disease the child may die from syncope or exhaustion, and scenstimes death occurs in an attack of convulsions. Convulsions are due in rure cases to be morrhage into the crusial cavity. Mr. Hallowes has reported the case of a bay between three and four years old, who had fixed in a good air and been well feel. This lad, after being languid for one day, developed bruise-like patches on different parts of the body, and died on the third day after a convulsive attack followed by rigidity. At the autopsy extensive hemorrhage was found to have occurred into both ventricles with laceration of the brain substance. No ruptured reseal could be found.

Convolutions in purpose are not always the consequence of cerebral hemorrhage. A little girl three months old was under my care in the East London Children's Hospital for voniting and discreton. After these derangements had censed a purposic cruption developed on the body, and in a few days the child had an attack of convolutions and died. Here the brain was found to be unresulty assenic and there were no signs of intracranial extravasation. These are, however, asseptional cases. In the child a fatal termination to the illness in sure. Usually after a longer or shorter paried the hamorrhages cause, and the patient regains his reloar and attracts.

The course of the disease is almost always irregular. The excessive crops occur at uncertain intervals, and often the disease is thought to be cured when a sudden return of the extravasations shows us that the hom-

corlugio is poloney is not yet overcome.

Day cont.—Hemserbagic purpura cannot be confounded with a malignant form of countherns, for the high fever and profound general suffering monifested in such dangerous cases are not present in the milder

complaint.

In scurry there is always a history of privation or injudicious feeding; the special symptoms follow upon a period of ill-health; general tenderters is a prominent feature; and there is marked feedleness from the very first. In all these points the affection differs from purpura. Moreover, the treatment of the two discusses is deferent, and measures which are found to have an immediate influence upon the scorbatic condition are powerless

to check the hymorrhagic tendency in purpura-

In hemophilia, which is characterised by similar symptoms to those of purpose, the disease is a constitutional one and is shoost always hereditary; the family tendency is well recognised, and the hemographe is usually first manifested as a consequence of a cut or injury. Moreover, the disposition to bleed is a chronic and permanent store, and is not a more or less acute condition which can be usade to cease by appropriate remoders.

Proposite.—In simple amcomplicated purporn the prognosis is always frequentle. In homorrhagic purpora the disease is more serious; but if the child be submitted early to treatment the illness rurely has a fainlesser.

Fremore!—In all cases of prepara the shill should be confined to his bod, as rest is of extreme importance in preventing repeated reliques of the discuss. The two forms of purpura, etc., that which comes on quite sublenly in healthy children and that which altacks feeled or carbortic subjects, require a different motified of treatment. In the first the old plan of energetic purgation is peculiarly valuable. Often in such cases a course of iron or other tenic is followed by no banefit whatever, while a few doses of some drustic appricat cause a prompt and final disappearance

of all hamorrhagic syngtoms. This treatment is equally useful whether the complaint be of the simple or homorrhagic variety, and may be enplayed without feir even in cases where great anomia has been induced by the loss of blood. If the liver is found to be excellen from congration. as sometimes happens, its size is quickly reduced by the purging. It is is these cases, perhaps, that the value of aperients is need strikingly (fasterted; but all cases of the neste variety of the complaint seem to be benefited by this method of treatment. The best form in which the openent can be prescribed is a condensation of the oil of turpentine with castor-of For a child six years old, two drackers of each may be given made into an emphision with moralige of tragsouth and flavoured with grap of lemons and pepperment water. This draught should be taken before brialfast every morning, or on alternate mornings, according to the effect produced. If the homorrhage is not arrested in the course of a few days, nonand arsenic should be given in addition after each neal. A child of this age will take without inconvenience fifteen slrops of the tincture of percharile of iron and three or four of Fowler's solution, freely diluted, three firms a day. Other treatment is also recommended. Werthof, who first-fewribal the disease, relied upon quinine and dilute sulphune and. Erget is preferred by some, especially in cases where the hemorrhages are espires; but this drug should be always given by the mouth and never hypoleguically by the injection of a solution of ergotin, as obstinate bleeding has been known to result from the puncture of the peofic.

Special homography on most be freuted by special means; spirituin by the injection of iceal water, or by the use of a spray of perchloride of loss. In using the spray the most possesses must be first cleared out completely of clot by the injection of water. Afterwards two drachuss of the strong perchloride of iron solution diluted with water to two concess must be sprayed into the nostrils. Hemography from the game may be usually arrested by an along gargle or the infusion of rhatany; intestinal homography by iced-water injections and the application of an ice-bag to the ab-

domen. In bemetaria gallie neid should be given.

When the patient becomes suscanic, stimulants (port wine or the St. Rephael tennin wine) must be given, and the child should take plenty of

matritions food.

In the cachectic form of purpora sperients are less unitable. In these cases stimulants are required from the first, and the child should take food in small quantities at a time so as not to overtask his feeble digestics powers. Iron wine may be given with arsenic, and cold-liver oil is useful. As a special styptic turpentine in ten-minim does is of service, taken every three or four hours, or an equal quantity of the liquid extract of ergot may be administered several times in the day.

CHAPTER VII.

SCURFY.

Screen is a disease which is now must seen in its most pronounced form even in the adult, unless under circumstances of exceptional hardship and privation. As one of the diseases to which young children are liable it has been, until recent times, completely ignored. Lately, however, owing to the observations of Dra Chemile, Gee, T. Burlow, and others, a form of the malady has been recognised as an occasional consequence in infants of bad feeling and injudicious management. In such subjects the discuss is commonly grafted upon rickets; and there can be little doubt that it is this conjunction of the two maladies which constitutes the state described

he Paret and others under the name of most redots.

Charation, -A scorbatic taint which reveals itself by the milder phenomena of scurvy appears to be less ancommon than was at one time sapposed amongst the out-patients of large hospitals. Dr. Eule, of Norwich, and Dr. Rollo, of the Lopsley Hospital, have both met with such cases amongst their patients; and Surgeon-General Moore has remarked upon the frequency with which similar exceptorus can be detected amongst the inhabitants of certain districts in India. In all such cases had or insufficient food is no doubt the cause of the impoverished state of the system, especially the want of fewalt ment, fresh milk, potatoes, and vegetables generally. In young rhildren the ranses appear to be very similar to those which lere the power of setting up rickets, although they are not identical with them. If an infant be fed with excess of sturchy fool and suppiled with sweetened preserved milk instead of the fresh milk of the cow. if he be dirty and neglected as he has person, and breathe habitually a close, foul air, the conditions are just those which are capable of setting up the scorbutic state. An infant so brought up quickly begun to show signs of rickets, and may perhaps be found all at once to develop the symptoms of scurvy. That every bally fed child does not manifest similar phenomena is probably owing to the fact that many articles of diet are anti-scorbutie, although not anti-melitie; indeed some, while they preserve from searcy, may actually aid in the production of rickets. Scarcy differs from rickets in not being a discuss of general malnutrition. In the former the affection is due merely to the absence from the blood of some constituent whose presence is essential to health. In the latter the whole system suffers, and the condition is one of general impairment of autrition from deficiency of wholescene food. Consequently as long as the andispensable element is supplied to the blood the patient does not become scorbatic, however well the diet may be adapted to farour the oncurrence of rickets. Thus a child fed largely upon potatoes may very probably grow rickety, but he will certainly escape source. Again, in Engand fresh fruit, being cheap, is largely consumed by the children of the peop. Even habites in arms are allowed to nibble at an apple of a plum

as soon as they are able to hold an object in their hands. During the summer months they get atrawhereise and geoseberries; in the sutumn apples, pears, and plams; and in the winter and spring compoby such means a scorbatic tendency is no doubt counteracted, but peared natrition is little improved; indeed, it is not improbable that on accounof the indigestion and acidity which such indulgences must accomrily exerts at this early age the occurrence of rickets is actually pemoted.

The outbreak of scurry often appears to be determined by some inflience which comes a temperary depression in the ghild's strength. Children who inherit a distlictic tembers; are probably more prose that constitutionally healthy subjects to suffer readily from the want of mile and fresh and wholesome food. In many cases, however, it is noticed that the patient is emilded to resist for a long time the influence of a distinctly injurious dictury; and it is only when the natritive processes are brought to a unlike associatill by an attack of gustra-intestinal ratural that socia-

tic expetoms begin to be observed.

Scarrey is not confined to the subjects of rickets, but most scoriarse children are found to be suffering from that discuss. This is not to be wondered at, for the age at which nickets is most liable to occur is sho that at which scurry is chiefly found to prevail. The two affections are also, as has been said, induced by causes very similar in kind; and the general impairment of nutrition of which rickets is the consequence to death readers the patient especially sensitive to the affects of a many diet. In most of the recorded causes of scurry, in the young subject the

noticula have been maler sighteen months old.

Morbal stantony.—One of the most characteristic morbid changes induced by the disease is a copious extraversation of blood into the tissue of the limbs, especially of the thighs. The muscles themselves are nonally pule, but the tissues between them may be infiltrated with semm more or less blood-stained. Sometimes blood is extravasated into the substance of the muscles, but without my evident loceration of the flore. The chief seat of the extravalentics is between the periosterm and the box. In many cases the investing membrane is found to be separated widely from the shaft of the bone, retuining its attachment morely at the spephyses. It is, moreover, greatly thinkened and deeply injected. Between if and the lone has a large, lonedy albereut blood-clot in which the box is embedded. When the dot is cleared away the hone is found to be perfectly smooth, although bare of periostesse. Another constron festure is a separation of the epiphyseal ends of the long bones. This squared is not at the line of union of the spiphysis, but in the shaft of the bour just below the point of jamelion. The osseons structure at the sort of fracture can be noticed to be particularly loose and spergy. It is impretant to remark that in all these cases where separation of periodeum last occurred no sign of caries or extelliation of the fame is to be discount. Nor does the extraoration of blood ever appear to end in supportion The shaft of the lone is curiously fragile and thinned. This stroply is well seen in some cases in the ribs, which may appear to be reduced to the two bony plates by almost complete loss of their cancellous structure. Extravasation of blood never seems to take place into the articulations at is seen in homophilia; for all the joints and tissues immediately conneded with them are found to be healthy.

The above changes in the boxes and periodeum are common to all fittle cases of scarry in the child. Mr. T. Smith's case exhibited at the Pallo-

topical Society of London in 1875-76, under the provisional name of assecringle periosititis," showed the above changes in both lower limbs. The parts principally involved were the flagh lones, but the lones of the legs were affected, although to a less extent. In Dr. T. Barlow's beautiful preparations shows at the Boyal Medical and Changgieal Society in 1883, the same characters were observed. The effused blood has usually been found of a deep narrone colour and congulated. Of other organs the abdominal viscers are generally bealthy in these cases. The same thing may be said of the chest; but ones or twice Dr. Barlow has found some effusion in the cavity of the plenra, and in Mr. T. Snith's case there was a small homography in the long. Often no sponginess or inflammation of the guns is to be seen, but little harmorrhages have been noticed at the point of the guns is the attention of the up-coming tarth. Other small extraorations may be present in the skin in various parts of the body. They may occur around the ribs, and may be discovered in the intestines and kidney.

The above morbid characters can leave little doubt that these cases are rightly classed under the head of scurvy. It has been objected to this view that although the symptoms observed during the life of the child do not, as a rule, point to any very marked deterioration in the quality of the blood, the lesions noted after death are the later manifestations of the disease, such, indeed, as occur in the adult only as a consequence of profound constitutional cacheria. Time sub-periesteal homographs, which is a late symptom in the adult, is produced early in the child; and the affection of the game, which is usually regarded as one of the carliest and most characteristic symptoms of scurvy, may be absent in the young subject altogether. To this it may be replied that cuchesia is produced very rapidly in the infant by acute disease, and that in some cases of scurry in the child an extreme degree of anymis and debility has been reached. But greating that in rising cases serious lectous have been discovered where the general symptems have been comparatively mild, this is not to be wondered at, considering the ago and psynlineities of the patient. In a blood discuse such as scurry it might almost be anticipated that the tissues chiefly affected would be those in which growth and development are making most active progress. At the age at which young inlants are usually found to enfer no tissues or organs are undergoing more rapid changes than the long bones, especially those of the lower limbs; and it is exactly in these situations that the more prenounced lesions are observed. On the other hand, in the praxillary bones confication and development are practically at a standatill; for the child being (as he almost always is) the subject of rickets, the lows have ceased for the time to increase in size, and the evolution of the teeth is completely arrested.

The cause of the deterioration of the blood in scurvy appears to be, not the mere absence of potask salts, as Dr. Garrod believed, but rather, as Dr. Burson! supposes, the absence of these salts in combination with organic axids. Dr. Ralfe has still further developed the latter hypothesis. This observer is of equinon that the primary change depends on a general want of normal proportion between "the various axids, inserganic as well as organic, and bases found in the blood, by which the neutral salts, such as the chlorides, are either increased relatively at the expense of the alkaline salts," or these latter are also lately decreased. He concludes that there is a diminution in the alkalinity of the blood, and that this produces dissolution of the blood corpuscles and futly degeneration of the muscles

and of the secreting cells of the liver and knineys.

Symptons.-Children in whom the symptoms of scorey are noticed

are often large, flabby infants between twelve and eighteen mentla old They usually show the unider phenomena of rickets, each as professe aweating about the head, lateness of dentition, enlargement of the ends of the long bones, and heading of the ribs. In such subjects the course of the secrebatic disease is as follows: The patient shows signs of unread and extreme tenderness. He dwards being handled, error if put upon his feet, and if he had been able to walk, is quite taken off his legs. Next he begins to suffer from pains which seem to be constant. The child has mouning in his cot, and screams if touched or even approached. Verr soon swelling is noticed of a limb, usually a thigh-one or both. The affected part is enlarged by a cylindrical swelling which although not acbuilty beauty to the touch is yet firmer than natural. In many cases it is distinctly coloniators, but it may not pit under the finger, although a often gives the sensation of containing infiltrated sensity. In the force limb the swelling usually receptes the whole length of the thigh and often of the lag. There is no perceptible fluctuation, and no enlarged wins can be seen, but the tint of the skin is often livid or faintly lead-coloured. and in a case recorded by Farst its tint was red and glistening. There is no effected into the joints, but these are usually swellen from calargement of the articular ends of the bones. The upper limbs are less affected than the lower. The foreign just above the wrist is here the part is winch swelling is most commonly noticed. In such a case if the swelling is not entensive, it is difficult to distinguish it from the ordinary epiphysesl enlargement so commonly present in the rickety child. But besides the parts which have been mentioned swellings from local periosted raintraction may be found at the upper part of the hunseus and on the shoulder-libries, and sometimes smilar extravasations are noticed in the skin and subcataneous tissue. Petechin, bruisc-like pateken, and own small blood-tumours may be met with. There appears also to be the same tendency to the formation of alcorating sores on the entracers arface which has been remarked in cases of scarsy affecting the adult. In one of Dr. Cheadle's cases—a little boy aged sixteen months—there were two unhealthy looking sores sented the one on the right wrist, the other on the fore-finger.

At first, when the sorthings begin, the child keeps his limits flood but inter a new phenomenon is noticed. The patient consecto flex his legs and allows them to remain stretched out straight in the bed, as if he hallost all power of movement. It will now be noticed on examination that a soft expirits can be detected in the neighbourhood of the points from separation of the applywed code of the bones, and the wrist may dep from fracture of the carpal end of the radius. At this stage the parts can be examined without the child appearing to suffer pain from the move-

ment of the articulations.

In many of the cases in which the symptoms are well marked, spenji tess of the game and other minor manifestations of the accelerate tant are entirely absent. Sometimes, however, the game are red and soft and gelatinous-looking, and may be so swellen in netunily to protrade between the patient's lips. They bleed at the least touch. The averling may extend to the nuccous membrane of the palate, and this may be so spengy of almost to touch the dorsam of the tangue when the menth is open. Dv. Classific has reported some cases in which the affection of the game on maccompanied by signs of deep-sented extravasation in the limbs tot the two conditions may be present together. The child appears at this line to be the subject of marked enclassin. He is sollow and very emersion his temperature is often ruled, reaching to 101° or 102° in the evening; his appetite is poor, and his howels may be related. Often profuse perspirations are noticed. If the mucous membrane of the mouth or gimes is affected, the breath has a most offensive older. The weakness is notally very great. The child ceases to be able to support himself in a sitting posture, and when placed in that position falls on to his side at once if left alone. The urine may contain allounces and sometimes is reddened with blood. The abdominal organs seem to be healthy, and no enlargement can be detected of the liver or spicen. There may be cough, but the physical signs of the chest are namely normal, or consist merely in a few large bubbles board here and there about the back. In one of Dr. Gee's saws - a child aged one year - a curious recession of the clast was noticed. At each inspiration the whole of the front sank invaris, the ribs bending on each side at a point much outside the costochondral articulation, and the breast-bone receiling instead of protruding as in rickets. Dysphosia is not, bewever, mentioned in other recorded cases of the disease in early

As the tilness progresses it is often found that the creding first noticed begins after a time somewhat to unleade, and another limb becomes affected in a similar way. Thus, in Parst's case the earlier swellings appeared in the left former and the tible of both limbs. Next, unlargement was noticed in the right foreign, and afterwards in the left foreign and the right arm. At the time when these secondary swellings appeared the parts first affected began to recover, and the fever abated. Even after apparently complete recovery the disease is still limble to recor, under the inflames, probably, of the same causes which provoked the original attack. Thus, in Mr. Thomas Santh's case the child was send to have suffered eleven neighborhoodly, from like symptoms which had lasted over a period of two months.

Ferer is not always present in cases of scurry in the child. Sometimes, as has been stated, the thermometer marks an elevation of 101°, 102°, or ever higher, but the discuss may run its course without the occurrence of pyrexia. Still, if the harmorrhagic effusion is great and the tenson of the periosterm correspondingly savere, a certain amount of fover is usually to be noticed.

When the patients recover, as they will usually do if samable treatment is adopted in time, the temperature falls, the tenderness subsides, the swellings disappear, the appetite improves, and the strength and colour return. A degree of thickening is left at first around the bone at the site of the swelling, but this after a time is no longer to be detected. Even the separated epiphress will, under aroundle conditions, become again consoliuted with the shaft of the bone.

Degracic—In all cases where a young child presents symptoms of rickets, and it is discovered that his feeding and namagement have been such as to favour the special deterioration of the blood which gives rise to surry, the symptoms of that discove should be looked for. These always supersent upon a state of ill-health, and unver occur, as is the case with purpose, in a child whose condition is not in other respects unsatisfactory. Exaggregated tenderness, even in a case of rickets, is a suspicious symptom. In rickets tenderness is confined to cases where the bone-changes and general features of the discovering signs of rickets, is evidently suffering from the discovering a mild form, it points very decidedly to sourcy.

When the swellings occur in the limbs the great enlargement without

furtuation, or reduces, or local heat of skin, is unlike ordinary perioditia, and, indeed, this disease is not a recognized complication of rickets. If then, the patient be suffering from rickets, the probability of the additional phenomena being due to the supervention of scurry abouble be considered.

In many cases, especially if separation of the epiphyseal ends of the lone has occurred, with the symptoms of passale-paralysis, the difficulty is to exclude applitus, and if, as may largest, there is a history of miscarriages on the part of the mother, or of doubtful symptoms in the shill lamself shortly after birth, it may be impossible to exclude a synthine taint. Still, the diagnosis of scurvy may often be centured upon. Synthinpsculo-paralysis is temally accompanied by enlargement of the sphere and all the agus of a profound symphilitic cachesia. The child is greatly ensed. He is house and stuffles, the crunial bones have the characteristic thickeing, and the shin has the peculiar day, pareliment like appearance so connous in the inherited disease. In scurvy the patients are not as a mis greatly emaciated. Often their general autrition is fair, and the special characteristics of symbilis are absent. If the guns are apongy or agas of hamorrhage can be noticed in the skin or absorbere, the cribine is strongly in favour of scurry.

Proposit.—If the child be seen in time and measures are at once taken
to improve the quality of his food and supply the larking constituents to
his blood, recovery may usually be counted upon. When children dis
in this disease they die from exhaustion. Much will therefore depend
upon those who are entrusted with the care of the child, for scurry is on
of the muladies of which the treatment consists almost entirely in viginal

and judicious nursing.

Toursacat. - In all cases of infantile scurry it will be found that the child has been deprived of fresh milk and fed upon Swiss milk and other kinds of tinned food, which are delicient in the material receiving for maintaining all the constituents of the blood at a normal studied. In immediate change must therefore be unde in his slict. He should be given fresh cow's milk, diluted, if necessary, with harley-water or this best with a proportion of potato-grael. If he be twelve months old raw millon pounded in a mortar and strained through a fine sacre, may be given every other day alternating with raw meat-julee," or if the meat be not will disposted, ment-julee can be given every day. If the child refuse this fool the price may be avectoned with sugar, or what is much better with tarnip or carrot. Orange-juice is well taken as a rule, even by young balica. and is a valuable agreementatio. If the patient be in a very exhausted state, twenty or thirty drops of brandy can be given every three or last hours; or he may have one or two tenspoonfuls of burgandy or the St. Raplacel Tannin wine, diluted with an equal proportion of water. At the same time care should be taken to furnish a proper supply of fresh as: If the weather be smithle the still may be taken out frequently lying at fall length in a little carriage. If he be confined to the house, open windows should be insisted upon, every preciation being taken to keep the cot sufof the line of direct draught. The best medicine is cold-liver oil. This may be given with a few drops of the tincture of perchloride of itum, or in a drangit composed of three of four grains of the citrate of iron and que nine dissolved in a tempocaful of lemon-juice, and sweetened with spirited

To make now ment jules: Put you renow of least raw matters very findy related into an earthest record and pour upon the most energia cold water to every it. Suell inside the funder halors the fire for two hours. Here study through a viero.

chloroform. An occasional powder of rimbarb and aromatic chalk can be

given if there is an unhealthy state of the bowels.

When the game are spongy and bleeding, they may be painted several times a day with a solution of glycerine of tamin and glycerine of carbolic arid, fifteen minutes of each to the ounce. This application was used by Dr. Chendle in his cases with the best results. For the swellings of the limbs Dr. Barlow recommends surrounding them with wet compresses thoroughly urung out, and covered with dry clothe closely applied. An operation seems to be unnecessary, although Mr. Herbert Page has reported a case in which he made an incision through the periodeum and turned out the extravasated clots without ill consequences. Still, it seems probable, from the results in other cases, that eventual absorption of the blood will take place if the child be put under favourable conditions for recovery. If separation of the applyans has occurred, the limb must be kept perfectly quiet in applicts.

Part 5.

DISEASES OF THE NERVOUS SYSTEM.

CHAPTER L

GENERAL CONSIDERATIONS.

Tur diseases of the Nervous System in childhood present many difficulties. In early life the excitability of the reflex centres is normally in excess, and can even be heightened by causes which rapidly modify the general autotion of the body. Consequently slight irritants may give rise to symptoms of furnilt in the nerrous system which are out of all proportion to the agparently triffing character of the lesion which has produced them. On account of this excessive irritability of the nervous system many pullological states in the rhild express thouselves by consulate movements which in the adult are accompanied by much less striking symptoms. In the young subject, signs of nervous disturbance may arise quite independendly of actual disease in the nervous centres; and the apparent ocione of the commotion is not influenced by the seat of the irratant, and begs no proportion to the severity of the lexion of which it is the expression Indeed, the same violent spasmodic movements may be the consequent of lexious so various in situation and in gravity, that in a case where each symptoms are noticed it is often by no means easy to discover the position of the irritant or to say at first whether or not the nervous centres are but from disasso.

In rinkless investigation of discuse of the corebro-spinal system is mirried on by means exactly the same as are employed in the case of the walk.

As, however, the young child cannot describe his semations we have to trust much to objective symptoms, and are dependent upon the memory and observation of others for important information as to psculinities of

manner and changes in lemper and disposition.

Of the symptoms to which combral disease gives rise some are peculis to a centric lesion, while others are present in every case of servon disturbance, however it may have originated. In every variety of scate illness in the young child the impressionable nervous system shows again distress. This is well seen in a case of acute indigestion. The skin tecomes burning but; the child is restless, cries and talks wildly be twitchen and starts in his uncessy sleep and, if an infast, may be vidently

convulsed. These exceptoms indicate nervous disturbance but are not disfractive of cerebral lesion. So, again, a child may scream out with pain, and frequently enery his band to his ferebend or ear, without his bendache

being necessarily a sign of discuss of the brain.

These are other symptoms which are more directly indicative of cerebral origin; but which may still be present without owing their rasto my discoverable lesion of the nervous centres. Thus, spending is a size which should always be viewed with great suspictors. It is frequently present in convolutions, whotever their cause, and may even continue after the nervous seizure is at an end without being necessarily a sign of anything more serious than derangement of function. Sometimes the defect becomes a permanent one, and yet after death from some accidental cause a portune that examination of the body discovers no lesion within the skull. Stratesmus is not therefore necessarily a grave symptom. Still, it is so frequently a consequence of serious disease of the brain and membranes that its persistence after a convolute attack should always give rise to unessiness. An external squint, when it occurs without having been preorded by spasmodic thorsmouts, is often a sign of pressure upon the corresponding cross corebri, and may be an early symptom of cerebral tumour. Stribismus may, however, occur as a consequence of hypermetropia; and at intermittent aquint is not undrequently a symptom of chronic digestive derangement. Therefore, in all cases, careful search should be made for further evidence. In the case of cerebral tumour external squint is usually associated with ptosts and dilated pupils; headache and vomiting will probably laws been complained of; there may be tremors or spesisolic presentation other muscles; the sight is often impaired, and an ophthalm scopic examination may reveal the presence of optic neuritis.

Notarious, or small consensual oscillations of the sychalls, very often indicates the presence of cerebral disease. It is common in the second and third stages of tubercular meningitis, and is then accompanied by severe and obvious symptoms of intra-cumial mischief. It is not unfrequently seen in chronic hydrocephalus and even in simple orders of the brain, and is sometimes present as a consequence of cerebral atrophy. In mess of tumour of the brain nystagons often precedes paralysis of the ocular muscles as an early symptom of a growth within the skull. Nystagons is not, however, always a consequence of cerebral mischief. If it occurs in an infant in whom no other sign of nervous disturbance has been noticed it should suggest a congenital calasset; for this lesion of left untreated is age to induce oscillatory morements of the systall from alternate contractions of the retti and oblique muscles of the eye. Even in other children the symptom may be due to a congenital estaract which has been overlooked. In rare cases nystagons is the consequence of a local

chares

The condition of the pupe's should be always noted. During sleep in a healthy child the pupils are contracted but they dilate when the child wakes up. They are contracted in the early stage of meningitis, either the simple or inhercular form, and are also small if opium has been administered in too large quantities. In the later singe of meningitis and in many forms of cerebral discuss the pupils are large and equal. If they are alaggish and contract imperfectly or not at all under the influence of light, the sign is a very grave one. If they are unsequal on the two sides, the tyes thermselves being perfectly free from discuss, we can have little hope of the patient's recovery.

Impairment or has of rigid is snother symptom of importance. In

turnour of the brain it occurs early, and if combined with beadache and vomiting is very characteristic of a corebral growth. It is often observed in meningitis and in thrombosis of the cerebral sineses. In these cases optic neuritie may perhaps be discovered by the ophthalmoscope.

Deficies in the young beby is indicated by endless screams staring of the eyes, and a frightened look. In the other child by restlessness and random talking, as it is in the adult. The symptom is comparatively musty the consequence of cerebral disease, although it may occur in ease of tubercular meangable. As a rule, deliring in the child is enthroueither of digestive decongenent, of the febrile state, or of some alteral condition of the blood such as obtains in the acute specific fevers. In exceptional cases a transient delirium may be due to mere winkness, and may be seen on the subsidence of pyreins at the end of an attack of acute bibrile disease. In such a case it disappears at once when the child is spoken to and be assurers perfectly rationally. Early and pronounced delirium, accompanied by a high temperature, is very commonly induced by croupous pacumonia; and in any illness beginning with such symptoms it is to this disease that our thoughts would unfamily turn.

Drawaters, with dilated pupils, passing into stuper, is often a sign of intra-crunial mischief. After a fit of convulsions from reflex irritation, the child may be draway for an hour or two, but unless congestion of the busin have supervened and effusion of find have taken place into the shall excity, it is a symptom which in such a case soon passes away. If the fits are frequently repeated, and in the intervels the child is heavy and stupil with large sluggish pupils; if he takes no notice of familiar faces; and especially if the temperature is high, and there are signs of headache, the

case is probably one of meningitis.

It must, however, be borne in mind that drownings approaching conto stuper may be present without being due to a cerebral fesion. Certain cases of purumonia in the child are accompanied by stuper without to temperature being entraordinarily elevated, and may give rise to strong suspeciens of cerebral disease. In such cases there is often little to attract attention to the chest, and all the symptoms point to the brain as the part affected. So, also, at the beginning of certain fevers, in microis, and see in some cases of severe gastric disturbance there may be great discussed.

and stupor, although there is no lesion of the brain.

Loss of consciousness is not easy to detect in infants. The popular test is the capability of recognising a familiar face. If the laby is keeper "takes notice," he is thought to be unconscious. But it must be remembered that impairment of eight is an early symptom of turnour of the lenin, and may be present in other forms of cerebral disease. A child, therefore, may come to recognise objects and faces because his eight and not his intelligence is defective. In all cases of unconsciousness of the result is important to notice if the child still takes began tood. An infant, if his stapes is prefound or if he is suffering pair in the best or elsewhere, refuses his food; while, if he is only stapid and drowny, without being completely committee, and is in no pair, he will often take his bottle with available. When he is tortured with an other take his bottle with available. When he is tortured with an other or abelianisms colic, he refuses all food while the pain lasts; and a child suffering from meaningitis can only be fed with great difficulty.

Chrages of tenuer should be always inquired for. At the beginning of name cerebral discusses the child often soons unaccountably wayward not capticious. He is fretful estiout cause, or spitcful, or sellen and more These symptoms are not, however, confined to cases of brain affection. The same change is often noticed in chronic abdominal derangements, and may be a symptom of spilepsy.

Tressers, spaces, and paralysis are symptoms which derive their value

from the connection in which they are found.

Thereous are sometimes a result of more weakness, as when they occurr
in the late period of typhoid fever. In such a case they are general, and
the condition of the patient is one of extreme dobility. When they result
from cerebral disease they are often confined to one limb or to a group of
muscles. In such a case, if they are repeated, and occur always in the
same part, they should excute suspicious of tabercle of the brain. If
rhythrical, they would suggest disseminated sclerosis, although this is a
run discuss in childhood.

Some or countries recovered, both close (intermittent contractions) and tonic (persistent contractions) may be general or limited like the treasers to one side of the body, to a group of muscles, or even to a single mastle. As a result of cerebral disease they are often so limited. Thus, if a ciril 1 is subject to epileptiform convulsions which affect exclusively tenchalf of the body, some lesion (often a mass of cheesy matter) may be asspected in the opposite hemisphere of the brain. Still, a general consulting, as has already been remarked at the beginning of this chapter, is not necessarily a sign of disease of the brain; for in certain subjects a very trifling and passing irritent is able to induce it. This subject is

treated of at length in a separate chapter (see Convulsions).

Paralysis is commonly a consequence of disease of the brain or spiral cord; but even this symptom may be sometimes referred to a less serious origin. Thus a temporary loss of power may follow a severe and proleaged attack of convulsions, and is then attributed to enhantice of netwoforce as a consequence of the seizure. This form of paralysis seen passes off. If it pensist for a week or longer, it is probable that a lesson of the brain has actually occurred. Again, facial paralysis may be the result of causes acting upon the facial nerve after its point of exit from the temporal bone. An infant may be been paralysed on one side of his face from pressure of the forceps upon the trunk of the nerve; and in older children rheumatic inflammation of the nerve-sheath from a chill may be

followed by the same deformity.

Even paralysis due to cerebral or spinal disease is not always permanent. When the patient survives, power in the affected limbs is often recovered more or less completely. Thus, paralysis due to myelitis affecting the anterior comms of the spinal cood (infantile spinal paralysis), at first very extensive, may be found in a few days or weeks to have limited itself to one limb, or even to a single numele. Again, a puralysis from cerebral harmorrhage is often recovered from if the child survive; and the mysterious form of paralysis which sensatines follows an attack of diphtherin generally passes off completely after a time. The loss of power is often very partial, and affects special muscles. In cases of careful timour it may be limited to the muscles of the eye or free.

The various forms of paralysis in children which result from clot, ambolism or other shock to the brain, are usually accompanied by sphasis. With regard to this symptom it may be noted that loss of speech is of less value in early life, as indicating the sent of the lesion, than it is held to be in the adult. Indeed, in the young subject aphasis may be present although the brain itself is free from disease. It most be remembered that in a child of five or six years old the power of talking is a comparatively recent accomplishment, and that the utterance of any but the most simple please requires a distinct intellectual effort. In many weakened states of the body—whether produced by general discuss or special injury to the cenbrum—the necessary effort causet be made. Consequently, any slock to the system will in many children take away for a considerable time the

faculty of articulate speech.

Reputity may be noticed in the affected parts. If the paralysis be permanent, rigidity and contraction may eventually ensec. Rigidity, lowever, is often a merely temporary phenomenon which affects unions joint and comes and goes irregularly. This is often seen in owes of tobercular maningitis. Other forms of rigidity of the joints are seen in children, Tencontractions may occur in the extremities from reflex disturbance of the nervous system (see page 274); the limbs may be the seat of spostic rigidity from disease of the spinal cord; and in girls of ten or twelve years of it the so-called hysterical contractions of the joints are by no mean rurs.

A common form of rigidity is that which affects the number of the nucles and causes retraction of the band upon the shoulders. This symptem is a common one in cases of cerebral disease, and in a certain sign of intra-cranial lexico. Mere stiffices of the neck is not here reterred to This may be due to many causes, such as cervical carries, rheumatism, etc. In the retraction of the head so often induced by beain affection the head is drawn backwards upon the shoulders by negally contracted number at the back of the neck. This condition may be associated with rigidity of limbs, epitepinform fits, and hydrocaphalus. It is often due to base meningitis, and may be the consequences of mere distention of the latent vertricles with fluid. It is a grave symptom although not necessarily a total one. Sometimes it is intermittent.

Besides the symptoms connected especially with the brain, others derived from disturbance of distant organs may furnish signs not to be agreed of a cerebral origin. So great is the sympathy between the ration organs of the body in early life that disease in the central across system is invariably associated with more or less general disorder of function.

Founding is rarely absent in cases of earebent disease. It happens not only after meals, but at other times; and when retching occass on an empty stemach, or is coested by merely raising the child up from his led, it is a very characteristic symptom. Construction, also, if obstitute it a sign not without importance; and if associated with vomiting, and occurring in a child in whom gradual failure of health has been noticed, is very suspecious of tubercular meaningitis. Even the amount of tensor of the abdominal wall is a matter not to be disregarded. In tubercular meangates the softness and loss of elasticity of the parietes in sufficiently obscur to the touch, and at the same time the wall is depressed and retracted in a matter poculiar to this disease.

The state of the feesthing must be noticed. In many forms of brin lesion the respirations become very irregular, and this alteration of rights may be sometimes a very important sign. In tubercular maningitis, opecially, great irregularity of breathing, with frequent sighs and occupied long pursues during which the chest-walls are not seen to more, is a valuable

This important not to confound the involuntary scattering of the head from righly contracted associate with the columnary brailing back of the head which is seen in blaim who are suffering from the presence of an abscess equal to largest. Such case its accompanied by Involtes of the face and argest dyspoon; and a recting random to face in the back of the placeper.

aid to diagnosis when the nature of the disease is doubtful. There is a perdiar form of beauthing, called from the writers who have drawn attention to it the "Cheyne-Sades" type, which although not peculiar to exceed disease, is yet often neticed in such affections. It consists of a series of impirations gradually increasing in depth and strength and then as gradually discinshing, until the movement of the chest-wall is hardly perceptible. There are many theories as to the pathology of this peculiar respiration. In most of them a supposed discination in the excitability of the respiratory centre is a permisent feature. This type of breathing is often associated with headachs and delicious, and may be found in disorders of the heart and kidneys as well as of the brain. Still, when it is found, whatever be the discuss, some nervous complication is usually present.

Information can also be derived from the atute of the circulation. In the notice period of meaningstis the pulse often falls in frequency and at the same time becomes intermittent. If a child with a temperature of 102° have a pulse of 70°, especially if its rigitims to inregular, we should suspect the presence of tubercular meningitis. It must not be forgotten, however, that a slow pulse is not uncommon in children during convolucence from neute discose, and that this slow pulse may be irregular or even completely intermit at times, especially during sloop. We must not, therefore, althout too great importance to this symptom alone, unless the temperature be

elevated, and the child's state he one to excite anxiety.

Again, a remarkable modification in the rescularity of the skin is often seen in cases of tubercular meningitis. The child often flashes up suddenly, and slight pressure upon the skin, especially that of the face, the abdonen, and the front of the thighs, produces a bright redness which retains for many minutes. This correbral flash (called by Tromseau, who first draw attention to it, their circles/v, although perhaps more vivid and persistent in this discuss, is yet not peculiar to tubercular assungitis. It may be often produced by gentle pressure in sensitive children, especially if they are the subjects of pyrexin.

In all cases of paralysis in the circle a correlat examination should be unde of the heart. Children, like their chlers, are subject to embelians, and if andden beniplegia occur in a child who suffers from valvator discuse of the heart, we have reason to attribute the paralysis to this cause.

Lastly, the state of the urine must not be forgotten. Come and conreleases from Bright's disease are not uncommon in children. If, in such a case, redema, however slight, be discovered, and an examination of the water reveals the presence of albuman, we can have little heattation in

attributing the nervous symptoms to a toxic cause.

To make a complete examination of a young child in whom we suspect the existence of a combinal lesion, all these points should be taken into consideration. In addition, it is important to study the face and expression of the potient, for by this means we may often exclude serious disease. A testhing child who has just had a fit soldom looks ill—that is to say, his face has not the weary, haggand look which severe acute disease important upon it from the first. If the child's face looks pinehed and distressed we may be sure, however apparently trifing the symptoms may be, that the case is a serious one.

In connection with this subject of nervous symptoms in children it is important to remember that in them—even in children three and four years of I—we must be prepared occasionally to find the peculiar functional disorders of the nervous system which in the adult are called bysteris. These disorders are found both emerget boys and girls, and have no necessary relation to pulserty or the establishment of the extraordiction. Sensitive stablism, if frightened by the abook of a fall or other nervous impression, may be seized with convulsions of bysterical type and have various modifications of somability of the skin, combined, perhaps, with impairment or discouler of motor power. Aphenia, biminess, dealors, anasthesia, analysis, hypernethesia, rigidities, and poraless may be at mot with from this cause. It is possible that in some of these case the child is addicted to excessive masturbation, and some instances have been published in which there can be little doubt that debility and echanism of nerve-power induced by this means were the cause of the nervous disturbance. Office, however, there is no reason to suspect any such agancy. The patient is a strong, healthy-looking child with firm muscles and well-developed limbs. In not a few such cases the demangement can be referred to a fright or other shock to the nervous system.

Cases illustrating those various conditions are published from time to time in the medical journals, and all been practitioners must occasionally most with them. They are usually readily cored by the application of a

moderate galvanie current.

The diagnosis is not difficult. The derangement being purely functional, no maintive changes can be detected. Thus the paraglegic child has full, firm limbs with no sign of sunscular wasting. In the child who professes that he cannot see, and gropes his way like a blind purson, the retina shows no change to the ophthalmoscope, the comes is bright, and the pupils contract normally. Moreover, in almost all instances we may suspect the nature of the case, partly from the character of the graphens then solves, partly from the general appearance of the child, and partly from the absence of other signs of serious organic disease.

CHAPTER IL

LARYNGISMUS STEINGLUS.

Larresteure symmetre (child-crowing, spasm of the glottis, internal convolution) is very common in England. The compliant is a form of convolutive seizure which is limited to the muscles of respiration. Sometimes it affects exclusively the muscles of the glottis; in other cases it may implicate also the displarage and other muscles concerned in breathing. The disorder must not be confounded with laryngitts stribulous, in which there is inflammation of the glottis with spasm superadded. Laryngianus, as it affects the rocal cords, is a pure spasm, arising, as other spasmedic attacks are so upt to do in the child, from reflex initiation.

Countries. The complaint may be not with under two different conditions: In new-born infants in whom no other deviation from bealth can be observed, and in rickety stabling between the ages of six or eight

months and two years.

The spasm appears to be predisposed to by foul air and hot, ill-centilated rooms. It is a remarkable and suggestive fact that the disorder is essentially a winter complaint, being prevalent when windows and doors are kept closed for the aske of warmth. It is rurely seen in summer, when every window is open to admit the sir. Still, the demagement may occur without our being able to attribute it to any impurity in the sir. In these case it may be due to some special irritalishty of the reflex centres pscular-

to the individual infant.

Few writers now hold the equision that laryngismum is the result of pressure upon the rugus or its branches by an enlarged thymns gland. Were this so, cases of laryngeal spasm would surely be much more namerous than they actually are. Moreover, M. Hérard has reported that is six children who had died from this complaint, the size of the gland presented such striking variations that it was impossible to connect it with the production of the laryngismum from which they had suffered. It is equally improbable that pressure of any other kind set up on the pressure set in recurrent branch can produce the disorder. The effects of such pressure in the case of enlarged beauchial glands are well known. Houseness of the vocc and violent parceyumal cough are early symptoms, and if spasm is induced it occurs, usually, at a late period, when the existence of the disorder it occurs, usually, at a late period, when the existence of the disorder library subsiding without other symptoms being noticed, is not a characteristic of enlarged broughtal glands.

The association of laryngianus with rickets is indisputable. It was first pointed out by Elsasser, and was dwelt upon by Sir William Jenner in his lectures on rickets in 1860, and more lately by Drs. Goe and Henoch. For many years I have paid attention to this matter, and can call to mind but few cases of laryngianus occurring after the age of six months in which the child was not rickety in some degree. It is important to remember, in in-

vestigating this point, that the patients do not always show a marked degree of rickets. They may do so; but as often, perhaps, as not, the child is fit although pale and finish; -a big child, although a weak one. The corner tion with rickets-u discuse in which the irritability of the nervous certise is known to be exalted is a strong argument in favour of the reflex origin of the spaces. It also serves to explain the cases where many children of a family have suffered in turn from the complaint; for when a first child is rickety the others who are brought up under similar conditions members. come so too. Moreover, the tendency to laryngismus is often confined with a tendency to tonic and clouic spasm. In the same family one dill may suffer from speam of the glottis, another from general consulsaries; or in the same child attacks of laryngismus may alternate with general scharptic scirures, or may even be complicated by them. That the latter disturbance is often a pure neurosis is universally conceded; it seems therefore, no-diensly creating a difficulty to search for a different explantion for the former. Still, many other conditions have been und to be capable of enusing the complaint. Various lesions of structure connected with the service-sponal system have been discovered in children dying in a spasm, and in all of these cases a connection has been supposed to suid between the symptoms observed during life and the morbid appearance found in the disserting room. Thus the laryngest trouble has been proposed to chrome hydrocephalus, to excetosis in the skull eavily, or to actual pressure of the pillow upon a softened occuput. It seems highly probable that in all these cases the special pathological condition has been a pass coincidence, or at any rate has had only as indirect influence in indusing the narrous commotion. That no evident those change is needed in smit a perfect and even fatel speam is proved by the numerous cases on record in which, after death in larragionus from sunon, no lesion of the cereinsspinal system or of the glottis could be detected. It is equally certain that under onlinery careaustances intracmond inflammations and efficient da not produce spasm of the glottis, and there is no evidence that prosure upon the substance of the brain or spinal cord will have any such officet.

The exciting came of the seigure is usually some peripheral imitars, as in the case of reflex convulsions. There may be disorder of the digresses or other imitation of the stometh or bosels, or a swollen tense gum. The child may have been exposed to a sublen chill, and according to Hesselcold and esturch of the air-passages are the most frequent source of the focus of reflex irritation. In the few cases which have come under my notice of laryngumus attacking a child some time after birth where constrain of rickets were completely about, the spasses appeared to be due to night loyaged estarth occurring in a nervous, sensitive child. I was select to time ago to see a healthy body, seven months old, who had cut the both and was cutting his upper incisors. The little boy was peculially prececious, and had the bright, intelligent face of our twice his age. There was no subargement of the ends of the hones or other sign of rirkets. The child was brought up at the breast, and his general health was good to though his lowels were habitually costise. Some days before my visible child had caught cold and had begun to cough. His voice also had been basky. Since that time he had alarmed his parents by occusionally miling a noise in his throat. "like the crowing of a cock." He did not enfor from dyspaces, nor was there my lividity of the face. The seend was evidently due to a slight spasm of the larges, which passed off class to mediately and scened to cause little inconvenience to the infint hime!

The child's borrels were attended to and he was given half a grain of

chloral twice a day. The symptom then seen subsided.

In cases where there is great irritability of the nervous system cough or even swallowing may induce a passayon. Anything which frightens or irritates the potient may produce the same result. Thus in a young child who is subject to the attacks a fit of crying may bring on a seizure. Sometimes, again, the completat is a relic of pertusors, the space remaining although the other symptous of the disease lares passed away.

Symptoms. - We may often notice in rickety balacs an occasional crowor croak in their breathing which seems to cause them little or no incomvenience. In some children this symptom may continue for weeks and then disappear without being followed by anything more serious. In officers, after it has continued for some time the child is suidenly seized

with a decided attack of larguerismus strictules,

In a pronounced form of the seizure the child becomes all at once quite still and lies with his head back, his face congested and livid, his eyes staring, and his expression hargard and frightened. After a few accords the speam relaxes, the breath is drawn in with a crowing or bissing sound, and the attack is at an end. The child then looks pule and seems languid; often he goes to sleep.

in the more severe cases the spostn is repeated several times at short intervals. Still, actual closure of the glottis is seldom prolonged beyond a few seconds. There is no pyresis. At the end of an attack the child often somits, and sometimes he has a good fit of crying.

The above is the simplest form of the complaint-that in which the spann is limited to the muscles of the glottis. Even in these cases, however, signs of tonic spesses in voluntary muscles are often to be detected. The fingers are foreibly elenched upon the thumbs, and the tors are fexed under the feet. This tendency to curpo-pedal spisons may continue between the allacks and even for some little time after the secures have ceased to appear. The number of the spacers and the frequency with which they are repeated vary considerably in different cases. Generally the attacks are not very frequent at first, and sometimes after occurring several times they cease to appear. But if the child he the subject of marked rickets he soldon compos so easily. The seizures, having once begun, sooner or later return. In the beginning they may be seen at comparatively care interests, and perhaps only after waking from sleep, or when the child is irritated or frightened; but in bad cases they may recur so frequently that the patient is in constant peril. Dr. Roberton has referred to a case in which the spanes were not absent for more than ten minutes, day or night, for ten months. Sometimes they conse compictely for a time, but return at the end of some weeks, or even months. when a sufficiently powerful exciting cause is again in operation.

As an illustration of the length of time during which these attacks often continue, I may instance a little rickety boy, aged twenty months. who was an in-patient under my care in the East London Children's Hospital. Nine months before the child had had an attack of who eping-cough. After the cough had subsided the layugeal spoons still continued, and were often repeated eight or nine times in the twenty-four hours. He had been treated as an out-patient three months before admission with much benefit, for the puroxysms had been greatly reduced in number, although they returned on the slightest protocution. If by any chance he coughed he always had an attack immediately. During the first few days after almission the child had three parosystes daily. In these attachs,

which came on quite anddenly, his lips turned blue, his breaking we excessively difficult, his impirations were croupy, and his wiele body too agitated, although there was no general convulsion. Then the space abruptly relaxed and he heaved a deep sigh. After the seizure he was always very pale, but the breathing was antural and there was no hometon. The child had all the signs of well-anertest relate. He had only are teeth, the joints were large; the tentanelle was open; the ribs was very soft and the lower part of the thometry wall recorded deeply at not breath. The sphere was calarged, reaching awards to the level of the most three were no signs of swelling of the breachild glands. The child howels were loose and his motions very offensive. There was no fear, In this potient the spaceoslic attacks were cured almost immediately be

bothing him three times a day in cold states. A more complicated form of the complaint is that in which the span is not limited to the glottis, but involves also the displangm and other respiratory nurseles. These cases assume much more the characters of general convulsions, for there is often more or less tonic space of the limbs, and consciousness may even be interfered with. Thus the child hes backwards with dosky face, half-opened syelids, and autumed esse; breatling is laboured and inspiration difficult and crowing; the displayer sets irregularly; and there are often convulsive contractions of the new cles, coming profound recession of the lower ribs and soft parts of the classe. Sometimes for a few seconds the glottis is completely closed; the face then becomes kind-coloured, and the limbs are agitated by retarbine movements. According to Billiet and Barthez, the pulse is small, frequent, and irregular, and the heart's action also irregular and tunnilinous B the child be markedly rickety a general eclamptic attack may supervape, or there may be tonic contractions of all the voluntary massles, the boly becoming stiff, the limbs contracted, and the fargers and tors foreily flexed.

In new-born infants, on account of the feebleness of the child—for it is in weakly or prematurely born infants only, as far as I have noticed that larguginuss occurs so soon after birth—the symptoms are quietar. In the cases I have seen crowing-breathing was absent. The lips were roticed to turn blue and the face to become livid; the buby stretched himself out stiffly and remained for a few seconds perfectly noticeless with flowed impres and toes. There was complete immobility of the respiratory muscles, and he seemed as if dead. Then he drew a deep sigh and the attack was over. In these cases the spaces appears to be seated in the displaced made external muscless of respiration, knowing the glottle unificated for no symptom as noticed of marrowing of the rims. Obstructure is becausing seems to be complete. The science is short and rarely last longer than five or at the most ten seconds.

In an uncomplicated case of laryagismus stridulus, i.e., in a case when the complaint consists of pure mass-alar squam, there is no fever. Sometimes however, laryagismus complicates an attack of paramenia. The temperature is then high. These cases are very scrious and usually oil fatally.

Even in an uncomplicated case death may arous. If this hoppenduring a parencyou, the face assumes an expression of the utmost terror; the even are widely open and suffused, the pupils are dilated, and the cycladis seen to project; the complexion grows more and more dusky, sweat broke out on the forehead, and the pulse grows feeble and small. Inspiratory efforts are at first violent, then come; the heart stops, and the child lab

bark dead. Death may be preceded by general convulsions. This is the result of asphyxia from too long-continued spaces of the inspiratory nuncira. According to Dr. J. Selis Colon, incorceration of the epiglottis is upt to occur in the more violent pareayans, and may produce death by suffocation. The epiglottis is drawn forcibly down by the spasmodic action of the any-epiglottisican numerics, and its tree edge is cought between the posterior face of the largux and the wall of the pharyux, so as to cover the glottis like a lid and completely occlude it. In such cases it can be felt by the fuger passed deeply into the child's threat. Semetimes death takes place still more and lendy, and the end then resembles an attack of fatal syncope. The deakly face assumes a glassity pollid line, the numeric generally relax, and the patient is found to be dead.

In other instances, where the secures have been violent and persistent, especially if they have been complicated by general convulsions, the child may die more slowly. In most of these cases extensive collapse takes place in the lange. The spannedic symptoms untaile but the child's face continues dusky. His lips are blue, his nostrils work, he has very quietly breathing with rapid, shallow impirations which sapand the sheet very impurfectly; he gets more and more livid, and after some hours dies quietly

or in a final convulsion.

Sudden death from nephyxis may take place early, even it is said in the first attack. The slower death from collapse of the long is solden seen except in severe cases where the child is exhausted by repeated and violent parety-size, or where the complaint has been complicated by general convolutions. In rickety children who are left untreated for that discuss the spinian continue as long as the faulty nutrition to which the disorder is due remains unremedied. The sciences may therefore go on for mouths, or even years, when the parents are ignorant or cardens, and the child is injudiciously reared. In ordinary cases the patient is treated early and soon recovers. Children after the second year navely suffer from the complaint. I have, however, met with it once in a rickety little girl of four and a half years old.

Despense—In new-born babies laying issue, especially if it he of that matety which is manifested by spaces of the displanges and intercostal mateles without closure of the glottis, may be mistaken for infeatile telepins. We may distinguish the two discusses by remarking that in laying is must be temperature is normal, and that between the attacks the mastles are perfectly relaxed. This complete relaxation of the nuscles is the most trustworthy distinguishing mark, for the temperature is very young children may be mixed by many triffing and temperature in very young children may be mixed by many triffing and temperature in that gives rise to provide. Thus I once are an infant of two weeks old who suffered from those attacks, and in whom there was pypeon dependent upon personalities.

with copious effusion into the sac of the heart.

In older children the case may be mistaken for laryngitis stribuless. Here, too, the absence of fever is a very important distanction, if the discuss is quite messapplicated. But children while sutting their teeth are subject to frequent elevations of temperature from the natural process of derittion; and this in the subjects of rickets, who cut their teeth late, may be delayed far beyond the and of the second year. We should then be careful to satisfy ourselves that the gume are not swellen, and that there is no stomptime or other complication capable of giving rise to fever. Moreover, the bistory and course of the two discusses are different. In laryngianous the spann-comes on quite subdenly, lasts a few seconds or a

minute or two, and then subsides. Laryngitis is preceded by ourch and hourseness; the attacks of dysphora are much more prolonged, and our in the intervals the terrathing is more or less oppressed, the role learness and the cough lead and clarging. Again, strictulus laryngitis is an emit disease, while laryngismus strictulus is and to take on a very scale corne. In laryngismus there are often tonic spaces or carpopedal contractions and the disorder is often complicated by general convulsions. In larvnging convulsions are rary and tonic contractions are very mody seen, Lady laryngitis strictuloss, as a rule, attacks children after the age at alice they are most susceptible to laryngismus, and is not common in infinity under two years old.

Progress.—In now-born infants the prospect is very across, for the stacks at this early age are very spit to end fatally. Persistent bridge of the face or other sign of collapse of the lung is a symptom of very due.

garous import.

In oblic children, if the speam remains limited to the respiratory maseles, the prognosis is less serious than in cases where the convalues, at first local, afterwards become general. The percentage of mortility has been just very high by some writers; but statistics gathered from jublished cases alone are spt to be modesiling, as only the worst cases as likely to be placed on record. The prognosis depends in great means upon the strength of the child and the degree of richets which may be present. If there he much soffering of the ribs and consequent interferace with respiration, there is great danger of pulmerany collapse taking place, and the case is a very serious one. If, under these circumstances peaced convolutions ensure, the child's life is in very imminent danger. Even in the slightest cases we should speak guardedly of the patient's clauses of recovery.

Treatment.—If the child be seen during an attack, attempts should be used to excite veniting by passing the finger into the fisions. Afterwarh a sponge using out of hot water may be applied to the threat under the clim. According to M. Cheron, who first proposed the remedy, the inhibition of ammonia is almost invariably successful in arresting an attack. This physician advises all methers whose children are subject to spain of the glottes to carry a small bottle of ammonia—ordinary "smalling ulis—about with them. He relates the case of a lady whose child was always rapidle relieved by this means. Enfortunately one day the child was accord with an attack at a time when the swincely was not at last, and while the mother was hurriedly searching for it the child fell back

If the suffocative spaces be very interact, it is well to thrust the figure decepty into the child's throat, so that the apiglottia, if incorcerated, as described by Dr. Cohen, may be released. The science, however, in most cases, is ever so quickly that there is little time to adopt measures for abridging it. But we can at any rate take steps to prevent a return of the purceyone. For this object cold unter buthing is indisposably the most important and most immediately successful. The child about he placed taked in an empty bath to large busin, and be then rapidly specied despite the body with cold water. In winter he may be made to sit in his mater during the process. The buth should be given three times adoptery few cases of largugismus will be found to resist this treatment. I have used it in obstinate cases, and to children suffering from richels, will the most satisfactory results. Next to cold buthing fresh air is of the greatest service. The child, warmly drawed, should be taken regularly

out of doors, and even in cold weather should spend many hours in the

open sir.

Wails these measures are being carried out, search must be made for any source of irritation which may serve as an exciting cause of the spasms. Tense swollen gams should be lanced, the dictary must be reconstructed upon sound principles, and the condition of the digestive rand must be attended to. In many of these cases the boxels are boxel with relaxed simp ractions. If this be so, a dose of rhuburb should be given, and the cited aboutd take for a few days five or six grains of bicarbonate of soda dissolved in an aromatic enter sweetened with glycerine. Of special drogs, musk and belladenns are the most metal. The former can be given to a child of twolve mouths old in doses of one-third of a grain every six hours, and will be found to have a powerful influence in clacking the tendency to spasm. Belludonna to be of service must be given in sufficient dozes. A baby of twelve grouths old will take well fifteen drops three times in the day. Mr. Stewart of Barnsley, speaks highly of chloral in the treatment of spasm of the glettic, and recomments two and a half grains to be given to a child of twelve mouths old three times a day.

In new-born babies, for whom cold sponging is insolutionible, musk is a very important remody. One-fourth of a grain can be given three times a day, suspended in mucilage. It can be combined with ten drops of time-

ture of belladouns if thought desirable.

If the child is markedly rickety, iron and cod-liver oil should be given as seen as the state of his dispestive organs is sufficiently iroproved to make the use of the tonic desirable. Iron wine is, periosps, the best form in which that drug can be administered, for the alcohol it contains is an addition of great value to weakly children. Great care must be taken in these cases that the child is not overfed with formaccous foods which contribute little to his general autrition while they overfed him with unbuilthy fat. They are also very apt to turn acid in the stomach and broug cataerial demagements. No mention has been made of brought of potamism, for in this complaint I hold the drug to be of very inferior value, and place it for below musk in its powers as in antispasmodic.

CHAPTER III.

TOXIC CONTRACTION OF THE EXTREMITIES.

Toxic contraction of the extremities, or letsuy, is sometimes met with a young children, most commonly in the subjects of reflex convalsions or largugueous straighns. The contraction occupies the muscles of the bath, especially those of the hands and feet, and may be continuous, remitten or intermittent.

Greation.—Train rentrartion appears to be one of the many forms of reflex disturbance to which rickety and excitable children are so recalinty prope. The disorder much attacks a standy subject. It is most community met with in young patients whose publican is imperfect enter from injudicious management or natural delicacy of constitution, and appears to be predisposed to or excited by digestive derangements and other longof prestation. Thus a little girl of five years old, who had recovered under my two electration from tubercular peritonitis, but had remained very delicate and liable to gastric and intestinal troubles, one day evallored a part of an orange. She was seized shortly afterwards with source pains in the belly, and passed a few loose, unbealthy motions. At the sure time the fingers became firmly elenched, with the thumbulaverted and the wrists flored. In this state she remained for forty-right hours, in spite of name treatment by injectious and launtives. At the end of this time a large erems brought away a main of trunge pulp. The child was at once rehered, and the rigid contractions of the nuncles ceased from that moment Similar instances have been recorded in which a constituted state of the bowels has been a come of the phenomenon, and other sources at the turbance and excitement, such as pleaney, pneamonia diarrhos, inbotral worms, the irritation of aric acid calculi, and teething have been quoted as exeting causes of this painful affection. The age at which children an most liable to be attacked is between the first and third year. der is said sometimes to affect young girls shortly before poberty, and in such cases is attributed on the continent of Europe, where telesy seems to be more common than in this country, to the influence of cold and deep

Symptoms.—A child who has been for some time in a weakly state, and is perhaps, in the majority of cases, the subject of mild rickets, all at use cross with pain in the extremation, and it is noticed that these parts are contracted. Often the contraction is found to succeed to a fit of excelsions or an attack of laryageal spasm; but it persists after these are at an end. The muscular spasm may affect both hands and feet, or be noticed first in the fingers, and spread thence to the hard and wrist, the mild sall the toes. When fully developed the band is found to be fiend at the wrist, and the thumb to be firmly inverted into the palm. The fingers may be rigidly developed upon the thumb or slightly separated and perfectly straight except for some slight flexing of the last point. The miles are often extended and the toes firmly flexed. In a few cases reduces and swelling in the neighbourhood of the joints have been noticed. The one

traction in most cases seems to be painful. Infants any repeatelly, and other children complain of pains shooting along the course of the nerves. The muscles are in a state of rigid contraction. In pronounced cases, not only can the muscles of the log, such as the gastroenessii and peruncii and of the forearm be felt to be firm, but the act of munipulating them increases their tendency to become rigid. Pressure may even induce tende contractions in muscles of therwise free from rigidity, such as the pectorist, the muscles of the neck, and these of the abdomen. In a severe case recorded by Dr. Cheudle—in a boy two years old—even the muscles of the face were in a state of abnormal excitability, for irritation of the skin just in front of the left parotid region caused twitching of the orbicularis palphinarum, the lecutor also mai, and the levator anguli oris. The sure phenomenon was also seen, although to a loss degree, on the right side of the face. There was, in addition, some difficulty in availability, especially when liquids were taken.

When the attacks follow a convulsive sensure they may be accompanied by a temporary purelysis, such as is a not uncommon emergence of erlumpsia (see page 280). Sometimes the contractions are more extensize. Thus the muscles of the brank are occasionally affected. Rilbet refers to the case of a delicate little girl, agod twelve years, in whom the tonic rigidity of the extremities was accompanied by opisthotonos with extreme retraction of the head, and at times intermitient contractions limited to the back were noticed, closely resembling tetanes in character . but the jawa were not affected, as they invariably are in that disease. The disorder lasted for a mouth. In other cases, according to the same anthority, the spasms may be more limited and affect the hip or one side of the neck. The disease appears to be more senere upon the continent of Europe than it is in England. In the milder form common in this coantry the contractions are invariably hilateral, and affect the corresponding muscles of the two sides. As long as they continue, waiting in impoundle, and the child can hold nothing in his hand. In the slighter forms the contractions are remittent, and occasionally come completely. In severe coses little variation is seen in the rigidity, and it persists during sleep. Even complete annothesia from chloroform produces no relaxation of the tonic spans. Scanition is unaffected; reflex excitability is normal; the temperature is natural or even below the level of health and the child's intelligence remains perfect. In Dr. Chendle's case the muscles responded well to both the continued and interrupted current. The total contractions are rarely the only nervous symptoms present. Often they alternate with other forms of nervous spasm. The child may be subject to laryagismus which the or may be reachly thrown into convisions by any passing irritation. In many cases, as has been said, the contractions succeed to some such form of nervous seizure, and nonetimes an intermittent squint is noticed.

In most cases, in addition, symptoms of intestinal or other derangement are present. Distribute is one of the commonst of those symptoms; and indeed, the nervous disorder has been known to disappear as the condition of the housels improved. The duration of tetany is very variable. It may last a few days or persist for weeks. It usually becomes intermittent before it finally disappears. After coasing for a time it not unfrequently returns

Dispress.—This form of nervous space is realify recognised. Tente contractions occur in a child whose netration is impaired either from injudicious management, from gastro-intestinal derangement, or from the recent presence of acute discuss. Often he is the subject of rackets, and has already shown a tendency to other forms of nervous decorponent. Tetany

is bilisteral and symmetrical. It occasions no elevation of temperature and
is accompanied by no clouding of the intellect. These qualities, conduced
with the tendency to acrooss spaces, and the evident connection of the attack
with some form of perspheral irritation, will serve to exclude coroleal discase. In the severe form, which is accompanied by episthotomes and temoid spaces, the history of the attack, the normal temperature, and the catire absence of stiffness of the jave will be sufficient to exclude telums.

Proyecon.—Tetrary is merely a symptom which has no gravity whatever; and the prospects of the patient's receivery of benith depend upon course quite independent of the nervous space. As the children in whan tetrary occurs are often the subjects of a chronic intestinal decorporant, and are in many cases distressed by frequent attacks of laryugismps strikless, they may possibly succumb; but in estimating the patient's charges of recovery the tense rigidity of the extremities may be quite enclosed

from our calculations.

Treatment.—Our first care in the treatment of this complaint must be
to attend to any disordered condition which may be present interfering
with nutrition, and acting as an irritant to the nervous system. Gastrointestinal derangements must be checked; constipated howels must be relieved; the diet must be regulated to smit the needs of the system (no
Infantile Atrophy, Chronic Discrissa, etc.); and if rickets be present, uses
ares must be taken at once to arrest its progress. In all cases, indeed,
the general treatment recommended for laryngiumus strictures and rickets
with fresh sir, good fixed, cleanliness, and the administration of iron wirs
and end-liver oil, is of equal service in this disorder. Prictions and warn

baths seem also to have a beneficial influence.

In obstitute cases special steps are required to relieve the tonic right-This form of spasm will often refuse to yield to mensures which have the power of readily controlling the across disorders with which telus is allied. Chloroform puts an immediate atop to an eclamptic science, but has no power of relexing the rigidly contracted muscles of telasy and chlorid which is so valuable in arresting the space in larguginus stridulus is given in this neurosis without any beneficial pour. Bronce of potassism and musk appear to be squally uscless. In Dr. Chesdie's rear, before referred to, chloroform, chloral, and bromide of potamica was given without any success; but the contractions yielded after the trealment had been changed to Calabar Isom with cod-liver oil and iron wisk One tharty sixth of a grain of the bean was given three times a day. The dose was gradually increased to one-eighth before any effect was produced. A notable diminution in the stiffness was then observed. Afterwards the dow was increased to one-fifth, later to one-fourth, and lastly to seed and of a grain three times a day. The boy was well seven weeks after beganing to take the remedy.

Although the bean appears in this case to have laid a decided inflames over the sposm, it roust be noted that the child began at the same time to take iron wins and cod-liver oil; and that although the principal improvement occurred after the dose had been pushed to one-sixth of a gast, it followed two days after the important addition of penaled new uset had been made to the child's diet. The Calabar bean, no doubt, descres a name extended trial in these cases of tonic regidity. Still in the intensing case referred to it is doubtful what degree of improvement on becorectly attributed to this remedy; for the alcohol, the cod-liver oil, and the improved diet must have taken a sensible share in bringing about the

child's recovery of health.

CHAPTER IV.

COSTULSIONS.

The commetion in the nervous system which goes by the name of reimogent, or a fit of convulsions, is a common phenomenon in infancy, and is sensitives seen in early childhood. The seizure depends upon an exalted excitability of the reflex centres sented in the pone and modulity oblingate, but is soldon attended by charges in these parts expalte of being detected on examination of the dead body. The disturbance is constainly a symptom, and may be produced by a variety of causes. Irrespective, then, of the immediate danger to life, the phenomenon may be of accious moment or of trifling consequence according to the cause which has induced it. It is, therefore, of great importance to ascertain its mode of origin, for only by this means can we speak with any certainty as regards the influence which the attack is likely to have upon the future well-being of the child.

It is during the first two years of life that the tendency to this form of servous derangement is most active. At this period of childhood the nervous system of the infant, although immature, is undergoing rapid development, and the reflex centres respond briskly to every foun of peoplarial irritation. The tendency to arlumpin is not however, confined to this age. Convalsions may even affect the infant in the words. Early death of the focus and pressature labour can be sometimes attributed to this cause, and it is to this accident that some varieties of congruint deformity have been referred—those which are characterised by permanent contraction of special manches. After both the protocoses to congruint any continuo for a longer or shorter time, according to the natural sensitiveness of the nervous system to external impressions. It is therefore much more persistent in some children than in others, and may endure in exceptional cases to the might or tenth year.

Chastica.—There are certain conditions which predispose a child to correlations. Thus the liability to eclamptic sciences sometimes runs in families, so that all the children how of certain parents are found to suffer from these attacks. In other cases the tendency is confined to certain individuals of the family, or even to one sex. Thus all the boys may have correlations while the girls escape. Again, in rickets there is a special convulsive tendency which is very remarkable, and a large number of the cases of reflex convulsions are found to occur in children with this constitutional condition. When the predisposition exists very elight cases—causes often so triffing as to escape recognition—may induce the attacks.

Within certain limits the state of a child's matrixian does not appear to affect his susceptibility to convulsive sciences. A strong child and a weak one may be equally prone to suffer from this narroons disturbance. When, however, an infant is grantly reduced by long-continued interference with natrition, a remorkable difference is noticed in his sensitality to nervous impressions. Not only is there no exultation of reflex function, but the

normal excitatelity of the reflex centres is diminished or smalled. There, fore in a child so enfectded convulsions are seldous of reflex origin, but assually indicate grave coreland disease.

The exciting causes of the nervous commotion are very various:

True refer convalsions arise from periphenduritation. Injuries in the skin from pricks, burns, and wounds; irritation of the alimentary emilfrom indigestible food, hard focal masses, or parestic worms; of the genfrom inflammation and swelling during the cutting of a tooth; of the serfrom collections of war, the presence of a ferriga body in the malifory results, or inflammation of the tymposic cavity; retention of mine; solden chilling of the surface from exposure; violent constions, such as tr-

ror-all these exases may set up convulsions in certain subjects.

Irritation affecting the nuncous memberne of the stormers and interlies, and according to some authors irritation within the case, seem to be the most common exceting courses of ordex contributes. In hand-feel halics indirection is a familiar occurrence, and the disturbance set up by a new of undissolved card or other irritant may specific coloniate in an attack of coloniate, Again, editis in a more common disease of interest that is assume supposed. It is often a direct consequence of dental unitation, and occurs with such frequency as to constitute one of the more common complications of dentation. According to Dr. Weakes the inflated and suchlar gum is a source from which irritation is conveyed to the city gamphon, and thereo is deflected to the ressel supplying the tympose membrance. Accure our gestion of the membrance thus occurred in a source of extreme pain; and if the irritation persist, supparation in the tympose covity may follow. Inflammatory tension of the gum alone may set up the eximptic attack; and the according disturbance in the ear is a furtial source of such seignress.

Echanptic attacks are common in the child at the onset of scute librariand correspond to the rigor which usually introduces the febrile non-mert in other persons. These scirares must not be attributed directly to the pyroxia, for it is improbable that the more elevation of temperature is officient to produce them. The more severe the attack and the younger and more impressable the patient, the more likely are convulsions to be seen. These uttacks are solden dangerous, but the echanptic fits which occur at a later stage of the same discuses arise from a different cause and

have a brigmove meaning.

Another class consists of the conventions which are induced by imperfect admitted of blood. These constitute the less serious stately which sometimes arise in the course of pertussis after a prolonged purcuism of court, and often provide death in cases of extensive collapse of the lang-

Congestion of the brain is often quoted as one of the causes of ournsions, and no doubt fatal fits of scharpein are frequently associated with a hypersonic state of the cerebral vessels. The chief factor in such caus, both of the convestion and the fits, may, as Dr. Bustian has segrested be minute embodiems or thromboses in the small arteries and capitaries of the brain. In the fatal convulsions which sometimes absorptly terminate an attack of whooping-cough congestion of the brain is generally presenand is often dependent in such cases upon thrombosis of the crunisl states.

An exactly opposite state of the cerebral sessels may induce the same symptom. The maximized beain which results from profuse homestage or exhausting discharges, such as an attack of acute distribute, is often its dicated by a convaluate acisary. It is however, worthy of note that a equal degree of prostrution slowly established by a chronic intestinal derangement is not followed by the same consequences, the excitability of

the persons centres being then diminished instead of exilled.

Lastly, toxic curses may induce convulsive sciences. Unemic convulsions belong to this class, and also the columptic attacks which are constant in children who live in malarism districts. Lead in the system may produce the same result. Infants seem to be very susceptible to the infance of lead given modicinally. I have long ceased to make use of this remedy in the treatment of the distributes of young children, as I have several times seen convulsions follow its comployment, and the attack has appeared to me in some cases to be directly excited by the use of this agent.

Convenious arising from cerebral disease have been omitted from the above classification, as partaling more of the unture of opileptic attacks that of true colompsia. Reference must, however, be frequently made to them in discussing the subject of convulsion segures, for it is of the utmost importance in every case, where a child is taken with a fit to be able

to exchale centric causes from consideration.

Symptonic.—The convulsive seizures may come on sublenly or be precoded by symptoms of nervous excitability which are more or less obvious. Such phenomena are often called by nurses "inward fits." They are not invariably followed by a consulsion. Indeed, as a rule perhaps, they pass of after a time, especially of they are the consequence of digestice trouble, and the infant's peciality of manner returns. In other cases they become more and more pronounced, and columnate in an attack of relamptic spasms. Thus the child is unmerally disturbed in his sleep. He often shirls and twitches. His cyclids may only partially closs, and he wakes endly, starking up at the slightest touck. When awake he is restless and fretfal. His senses seem impossily acute, so that loud noises frighten him. He changes colour frequently. His face has a curious expression, the exchalls are often directed upwards and his thumbs may be twisted invarils across the palms. After these symptoms have continued for a variable time—often for several days—the child is all at once noticed to be unusually quoet. He starcs with a peculiar fixed lock, and his attention minot be diverted to his toys. Then, suddenly, the fit begins. The child gots quite stiff, his head is retracted, his some and legs are rigidly extended, his eyes are turned upwards, and he ceases entirely to breaths. In a few seconds the tonic rigidity is replaced by clouic spisons. The face becomes intensely congested, the exclids are widely open, and the cycballs are drawn upwards and to one side, and are twitched rapidly in different directions. The muscles of the has work, the tongue may be seized and bitben by the touth, and froth, perhaps tinged with blood, may appear upon the lips. The muscles of the limbs are thrown into the same sparmolic artism, and more or less pronounced twitching affects the arms and legs. sometimes even down to the fingers and toes. Conscionness is completely last. The skin is often covered with a profuse sweat, and in many cases. the sphinetees are relaxed, so that there is involuntary passage of urine and faces. During the closes speares the breathing is not suspended, but there are jerking movements of the respiratory muscles. After some time the synams become less elelent. The face then changes from dusky red to a deathly pallor, the muscles relat, the child often gives a long sigh, and the attack is at an end.

The spinsmodic movements are usually general and involve both sides of the body, although one side is often more actively consulted than the other. Sometimes they are partial, and may be limited to one or both limbs on one side of the body, to the two arms, or even to one side of the face. The eyes are almost always involved in the convalsion. The fit lasts for a time varying from a few minutes to several house. In the longer fits there are intervals of more or less complete remission, and sometimes the se-called fit consists of a series of eclaragite seizeres with short intervals of quiet. In more cases doubt takes place in the fit from approximate As a rule, the child sleeps after the seizers has come to a close, and may wake to all appearance quite well. When the fit is repeated several times the child is drowny for a time between the attacks, but the abspirate passes off in a few hours. As long as any signs of absormal excitability of the nervons system continue, and symptoms characteristic of the continue described as "inward fits "remain, we may anticipate a renewal of the revolutive seizers. It is not until all restlements, startings, tratchings, and

have disappeared that our apprehensions can be hid asole.

Some loss of motor power may be noticed after the fit is at an end. In cases of pure eclampsia this is a very temperary phononcurre, and only occurs when the seigures have been very violent and protracted. It is probably due to exhaustion of nervous power and disappears completely after a day or two. Any signs of permanent interference with neare-force such as local musculur weakness, contractions, or chorses movements, are usually taken to indicate some organic central cause for the courabout It is possible, inverse, that these symptoms may be the consequence of the surger; for sovery corolleal congestion induced by intense and pretracted coloupsia may give rise to be morrhage into the beain or enclared. Certainly I have known cases of convulnious occurring in children maresult of some temporary imitant to be followed by parelysis with contraction of musels, and have thought that in such cases the cerebral lesies might have been secondary to the eclamptic attack. There seems little reason to doubt that sometimes congrestion of limin, with severe efficient sufleaent in quantity to flatten the convolutions, may result from an educatic attack, and give rise to equinting, droweiness, and death.

A rickety little girl, aged twelve months, who had out only two tests,
was quite well initial January 7th, when she was weared. She then become
very fretful and remited her food. At the same time on couption of small
red spots appeared on her arms and face. On January 9th the child but
two lits, in which she "went stiff and worked her arms about." On Jan

ary 11th she had a third fit and then began to squint.

When I saw the child, on January 17th, she was lying with her symshosed; the right eye was turned inwards with convergent squint; the pepals were equally dilated, and acted well with light; there was no discharge from either car; the face was pole, but flushed upon pressure of the shin, there was no paralysis or contraction; the thumbs were not twisted inwards, nor were the town flexed. When the abdomen was congruent the child numbs uneasy movements. She was evidently not unconscist, but seemed drawey. The heart and lungs were healthy. The child was proporting to cut the upper incisors, and the gums were very full all tense. Pulse, 160, regular; respiration, of Cheyne-Stokes type, 40; inteperature, 95.

The patient was ordered a mercurial purpe, and become of potassess was given; but the drowsiness despend into stopos, and also find on January 19th. Her temperature ross every night to 101". Half on hour

before death it was 90.4%

On examination of the body the darn mater was noticed to be very tense, and the tonin budged through slits in the membrane. There was good remove congestion of the per mater, and the recevolations were here. tened. On removing the brain about two cancer of surgemodent fluid were left at the base of the shull, and on section much fluid except from the lateral ventricles. Nothing but congestion of the brain was noticed. There was no loss of consistence; the numberness were not thickened, nor had they lest their pearly appearance; there was no lymph effused, and no gray granulations could be detected. There was a mass of enlarged glouds at the bifurcation of the tracket. The lungs and heart were healthy. Unfortunately the cranial sinuses were not opened.

In this case it seems clear that the post-morten appearances were secendary to the convolutions. The nervous symptoms themselves seem to large been the consequence of refex instation from the state of the game, combined with irritation of the stomach from unsuitable food, both occurring in a child of rickety constitution. The red spots spoken of were

strophulous, resulting from the indigestion.

inherenlar meaningitia.

Sometimes loss of speech and even imbeculty have been known to follow upon an attack of convulsions. In such cases, no doubt, some profound

cerebral lesion has induced the fit or been caused by it.

Diagnosis.—In every case of convulsions we should examine the potient very carefully for signs of disease of the brain or its mosateanes, accessively as the first question usually asked by the purents after their first excitement and alarm have subsoled relates to the possibility of any affection of the brain. In infants of tweire mostle old or under, if the shift be fit and robust, the fit is in all probability reflex; if he be maler-nour-intest, weakly, and wasted, i.e., in that condition where all reflex excitability is practically in absymme, the convulsion is no doubt the consequence of an intracramal lesion. In a weakly wasted infant by far the most continuous cases of a convulsive science is general tuberculous with secondar.

The character of the fit itself will give some indication valuable in diagnotis. Cerebral convulsions are often partial. Therefore, if the spoons are limited to our sole of the body or our limb, we should search sarefully for signs of espeloral diseases. Paralysis of ther face remaining after the end of an attack is indicative of a cerebral lesion. Thus, drawing of the mouth to sur aids, ptoxis, or inequality of pupils are symptoms never seen in true promplicated estimpsia. A squar persisting after the convulsion has posed of must be regarded with anxiety; for although not necessarily a gross armytons, it is often indicative of a serious lesion; and if accompanied by signs of heaviness, or tendency to stupor, must be looked upon as an unfamourable ones. Again, convulsions, general or partial, without loss of consciousness, should lead us to suspect disease of the brain. Another important symptom is the condition of the child after the attack. In true educipsis consciousness is recovered quickly after the seizure; and if any drominess remain, it is over in a few loans. Signs of pendstent stuper or dulness of the senses would point to a cerebral losion. More temporary loss of power in a limb is no proof of centric origin; but if the purdous confirms longer than a few hours or a day or two, especially if contraction of unsele occur, we may conclude that some centric lesion, either primary or secondary, is present. Even if unmistakable evidence of a corrbrid lesion is seen when the convention is at an end, it does not follow that the legion was the cause of the it. One consequence of eclimptic science is congestion of the brain; and if the nervous attack be projonged, arrans effusious, and perhaps minute capillary bemorrhages, may occur and lead to alumning consequences. A case in which death took place from this cause has strendy been murated.

It has been said that conversions taking place of the end of the casethemata and other febrile diseases are commonly attributed to explain congestion, although it seems probable from the observations of Dr. Ros. tion that embolic plugging of minute cerebral arteries takes a large share in their resoluction. These attacks never come on except at an alternal period of the illness, when the state of the patient is evalently very serious; and they quickly put an end to his sufferings. It is right here to remise that a fit may be the first sign of secondary tuberculosis. Tubercular meningitia, when it occurs in the course of an acute illness, has its sen ourly symptoms masked by those proper to the primary disease, and other nereds its presence by the more violent phenometa which are clarams. istic of the third stage of the intracrapial losion. Appearing to this form -as a port of a general formation of the gray granulation all over the body-taly realize meningitis is not uncommon in liables of only a few racettas sld. If there in a shild of new age suffering frees as scuts inflammatory disease, such as an attack of neute catarrial promotest convalsium come on, we should strongly suspect tuberculosis; and if the trie followed by equinting and irregularity of pupils, with or without rigility of joints, we can speak confidently of the existence of tubercular inflammation in the skall esvity.

In cases where no serious cerebral lesson is suspected, it is imposing to distinguish an eclamptic attack from an epileptic science. At the true the is impossible, for the state of the patient requires all our altenties, and it only to quiet the alarm of the relatives, it is urgent that something sheld be done. When, however, the subsidence of the squama gives us bricks to make impairies, we should try to discover some source of arritation to which the contribute may be uttributed. We should look for signs of solutions the condition which especially predisposes to sclamptic science—and in-

name for any convulsive tendency in the family.

The age is of importance. Up to the time of completion of the first destition the disturbance is probably not epileptic; and if the pure are tens or hot, or the child has lately swallowed some manifolds food as any feel satisfied that the case is one of pure schangele. Again, high fear a not a characteristic of epilepsy; therefore, if there be pyrenia, the fit is probably reflex, or is a nervous disturbance amounting the such of one of the exauthemata or of an acute disease. But the spectra of these considerations, under the age of two years epilepsy is rare, while reflex convolutions and the other forms of pure schanges are very outmen.

In older children it is more difficult, often it is quito impossible to rechile epilepsy. It however, the fit is a prelonged one, and hade to us hour or more willout intermission, we may conclude that the stack is colomptic, for the duration of an epileptic science rarely execute to the utes, or at the most a quarter of an hour. When the urans can be obtained it should be always committed for albumen, as arounic convoluces in chidren are not uncommon. For the same reason the whole hody should be carefully inspected for signs of peeling of the skin, as arounic convoluces towards the end of the desquaranties stage of scarlation are for from two. The attack of scarlation is sometimes so mild us to be overlocked by indtentive or unobservant parents; and even if it be known to have occurred the past illness may be looked upon as immaterial to the present dench arcs, and may not be referred to. In all cases we must remember that after the age of three, or at the most four years, example stacks from refer arritation are rare. Convolutions occurring in a child of this age if not due to epilepsy or corebral disease, are generally either unamic or are

permonitory of some acute febrile disease.

As long as any cause can be discovered for the attack the fit is probably scharptic. It is the convulsion occurring without evident reason that is as suspicious of true epilepsy; and if a child of four or five years old, or upwards, be visited while in apparent health by such a scious, we are untified in fearing the beginning of epilepsy. It must be remembered, however, that convulsive sciences, at first eclassific, may pass into true spilepsy. There is no doubt that this does happen in cases where there is a strong neurotic inheritance. Where there is no such predisposition I believe that epilepsy only follows in cases where the sciamptic attack has induced a secondary expelsal levies. In such a case, although the first attack, or series of attacks, may have occurred as a result of some appreciable case, the after convulsions may arise without anything being discov-

and to sarre as an explanation of the morbid phenomenon.

Proposit - Erlampeia is a symptom which may be serious or not accopling to circumstances. In estimating the importance of the symptom we must consider the age of the child, the nature and severity of the attack, and the probable came which has induced it. Infants of a few weeks cel often die even from purely reflex convulsions if the seignmen are violent. Office children have a better chance of recovery. After the first few weeks of life much depends upon the cause of the attack. Parely refex fits and the initial convulsions of acute discuss purely end otherwise than favourably. Again, the convulsions which arise from imperfect acration of the blood, such as may occur in pertusos, are often recovered from; but when the comes is collapse of the long they are generally fatal. In portuois, however, convulsions may be of several kinds, of which some are more serious than others. Those due to cerebral congestion and throughous are invariably fatal. Eclampus arising from congestion and angula of the brain are especially serious, because they neadly take place when the patient is already in a state of great exhaustion. When convulsions norm towards the close of the cruptive stage of mensics or searlytims, they must be looked upon as a very dangerous symptom. Unsenie fits often pass away without producing serious consequences. Winterer be the cause of the attack, sterforcus breathing, great lividity of the face with limeness of the mails, or a very rapid pulse should excite the gravest apprelamions. As a rule, the prospect becomes more unbroumble in proportion to the rapid succession of the eclamptic seizures and the severity of the attacks. The occurrence of a large flow of mine, according to M. Smor, is a sign of good erece, indicating that the convulsive movements are about to evase.

In convulsions from cerebral disease it need not be said that prognosis is most unfavourable; and if the fits are followed by stapes, equating, or irregularity and slaggishness of the pupils, we can have little hope of the

putient's recovery.

The influence which the attack is likely to here upon future beain-development in a point of importance, and much anniety is usually manifested on the subject by the circle's relatives. In the commenced case, that in which a rickety child has a fit as a result of some trifling levelust, I believe the attack to be usually unimportant; and familiar as is the experience, have rapely known the patient to suffer from my after ill-consequences. So in the case of the other terms of parely redex convulsions, the colompite senses is due to some temporary condition, or set of conditions, which may poss of, if the child services, leaving the term unborned. If,

however, the patient belong to a family in which nervous discreters are resmon, convalure seizures easine greater significance. If the attacks in often repeated, the prospect as regards the mental development of the shift is undecompable, for such cases may and in epilepsy or even iffice y. It all cases, too where the convolutions are connected, either as cause or effect with some intracrated lesion, and where they are followed by signs uses than merely temporary, of muscular weakness, there is no doubt that he the time the learn is injured by the illness. In cases of recovery especial care would then have to be exercised in the child's education so as not to

gut too great a strain upon his faculties.

Truspacet.-When called to a case of convalsions the practitions should lose no time in questioning the attendants, but should at case law the child placed in a warm both of the temperature of 90° Fah, and apply sponges dipped in cold water to his bend. This is the time-homoged remady; it is certainly an innocent one; it may tend to quiet the nerrous system, and it is one the officery of which is so generally recognised amongst the public, that it would be unwise to court unfavourable mits cism by neglecting to employ it. The both must not be continued to long. In ordinary cases the child should be allowed to remain in it for ten or brenty minutes, zerording to his age. If Lowever, the painest be an infant who has lately been reduced by an exhausting diarrism, he should not be allowed to remain more than two or three minutes in the warm water, and cold applications to the head may be dispensed with. If the convulsions have ceased when the case is first seen, the both need not be need; but we should not omit to have the child completely undressed, and then to see that he is placed, lightly rowered, in a large cet, and that the room in which he lies is well ventilated and not too light. One should be taken to unload the bounds by a large enemy of soap and water; and if the child be noticed to retch, his stomach may be relieved by a temperaful of specurouslys wine. In the core of a terthing infant opinious differ as to the propriety of hazing the gams. There is no doubt that this opcration is a uscless one if employed with any hope of Instening the enlistion of the treth; but if the object he to relieve pain and tension I consider the practice judicious and never hestate in such electrostances to have recourse to it. If it be desimble to remove all sources of irritation surely such a source of instation as a swollen and inflamed gam should not be disregarded. Lostly, if it can be discovered that the child lost had pain in the ear, or if the temponic membrane can be seen to be red, the ear should be fourested with hot water; and if thought desirable a look may be applied within the couchs, the meatur being first placed will ection were

If in spite of these measures the conventions return, or signs are refried of continued irritability of the nervous system, it is best to alminitor a door of chloral. Two grains can be given to a shill between six altwelve noratio obt; and if the potent be maddle to smallers, half as madagain may be administered by the rection, dissolved in a few temperable
of salor. If necessary the door can be repeated several times a day. Bemide of ammonium, and belladonna, are also largely employed in these
cases. The formes may be given in three or four grain doors every ten
hours to a child between six and twelve months old; the second in tenfifteen, or twenty drop-doors two or three times a day. In the convolumof pertunia, where the spann of the glottis is extreme, treatment by somide of ammonium or potanium and belladoum is especially intental.

The broundess are well borne by quite young children, and we should as

feir ill consequence from what mor seem a very large doss. Chloroform also is often employed, but is decidedly inferior to calcul and much more trouble some.

Nitrite of angl is a very useful agent in accesting consultions, and may be employed without fear of danger even in young infants. The remedy may be administered by the month or by inhalance. In the case of an refaut of six to nine mouths old, one-fourth of a drop of the nitrite may be given in mucilage and glycerine three or four times a day; and if the child be actually convulsed the inhalation of a drop on a morsel of list will usually put a speedy end to the squemodic movements. Even in cases traces the convenience acizures are due to carebral disease the symptom may be controlled by the same newns. Dr. A. E. Bridger has reported sense cases in which this plan of treatment was followed by the utmost benefit as far as the mescular spasns were concerned; for although the nitrite cannot of course exercise any temedial influence upon the centric disease, it is of no small advantage to be able to control a symptom which of all others is distressing to those to whom the patient is dear. Dr. Bridger found that it was necessary to increase the dose every twenty-four hours by about one-third.

If the child have been lately the subject of submotting discharges, warmth should be suppleyed, and stimulants such as the brandy-and-egg mixture of

the British Pharmacoposia must be given energetically.

If the convulsive attacks are followed by symptoms indicative of intracrunial misclaid, such as suppor, squinting, piosis, etc., the child should be kept quot and an icebag be applied to his head. In such cases the treatment must be conducted according to the conditions from which the con-

valsion is supposed to have arisen.

When the convolutors have reased, and signs of irritability of the nermus system are no longer to be observed, we must take steps to improve the general condition of the patient. His bowels should be attended to and his diet carefully regulated. If rickets be present, it must be treated associang to the directions had down for the management of these cases. Most children is whom the convolute tendency exists are benefited by iron wine and cod-liver oil, for their nutrition is usually at finit, and both the alcohol and the iron contained in the wine are beneficial, while the oil is of the utmost value in supplying nutritive deficiencies. From air, too, is of extreme importance, and the civil should be warmly dressed and taken regularity out of doors.

CHAPTER V.

EFILEPSY.

Essence, a discuse which may vary in everity from the most transient of consciousness to violent convulsions and profound come, is not uncommon in children. It has been estimated that nearly our-third of the case use with in the adult have begun under the age of ten years. The uninly is one of peculiar importance in early life, on account of its tendency to infa-

ence injuriously the development of the beain

Greation. In a large proportion of cases of epilepsy there is a large itary neurotic tendency. We often find a family history of epileps, of insanity, or of some form of nervous derargement. If this is the rase of the side of both parents the child's prospect is a sad one, and it such families every child may be afflicted with some form of neurotic distriance. Haldtail intemperance in alcohol on the part of the failer of mother is said to have a determining influence in the consultion of epileps in the child. Lancersons insists upon the importance of this case, and states that a tendency to convulsions in their offspring is a counter on sequence of alcoholism in the parents.

Carbertic conditions resulting from imperfect nutrition or discuss, such as anomia, chlorosis, and acrofula, have been said to favour the development of epilepsy; but I can find no sufficient foundation for this states set. Rickets contributes largely to the occurrence of echaspite stacks in a fancy, but it does not, according to my experience, especially preliques to epilepsy unless there be strong hereditary neurotic tendency; for what the discuss passes off, as it will do readily if the courses exciting it be to

moved, the pronounce to convulsive seignres also subsides.

Amongst the exciting consent of spilepsy violent contions, such as heree and fright, take a prominent place. Injuries, such as blows or falls upon the head, are answerable for many of the cases. It is also continue to fad the paroxysum attributed in the first place to eclamptic attacks occurring during childhood. It seems probable that in many cases of infantile covulsions some change takes place in the brain during the course of the fit, which afterwards induces a return of the acizones without discoverable cause.

A bright, healthy little boy, aged steren mouths, in whose study I could discover no neurotic history with the exception that his father of one of his uncles had had fits in infincey, was taken ill on August 31 1834. Some postules appeared on his legs and he was feveral. On the test morning he was seized with a convolute fit which lasted with combinal intermissions for several hours and left him paralysed on the right air During the next three days he remained in a dressey state and was fewred at night. I saw him for the first time on September 4th. The dakk a beauthy-booking boy, had but three testh. Still, although backward is the respect for his age, he showed no other sign of rickets. He was juing sith

closed eyes on his mother's lap. His pupils were equal and acted well with light; his pulse 146, one regular in rhythm but not in force; his breathing was unegalar and interspersed with sighs, although without long pouses; the temperature in the rectum was 101.6°. Both legs were covered from the lines to the nukle with an ergospelatous blash. Power ever those was, however, being restored, for the child moved the right arm readily and the leg a little. At first they had been completely paralysed. His longs and heart were healthy. The child scenned stapped but was not unconscious, for he watched a light passed before his eyes, and during examination of his ebest evied and twisted himself about. When the tent of his feeling-bottle was given to him, he seized it suggesty

and put it into his mouth. There was no puraleses of the face.

The convulsions in this case had been evidently an initial symptom of the erosipelatons inflammation and must have led to a small extravasation or other structural lesion in the train; for although the child quickly recovered the use of his limbs, he became subject from that time to frequent alight fits, which were no doubt of an epileptic rature. They came on every two or three weeks without discoverable came and lasted for one or two minutes. The boy was said to become subdenly very quiet; then, in a moment, his cheeks flushed, his lips became purple, his eyes, although not exactly fixed, had an unnatural look, and he lost consciousness completely. He did not twitch. When the fit came on he never fell, for his nurse seeing his subden quiet and anticipating what was to follow always took him up in her arms. In spite of treatment these attacks become con-

tacks were of the character which has been described.

The above illustration I believe to be typical of a class, and am strongly of epinion that the origin of many cases of optiopsy in the child can be referred to a similar accident. In other cases where there is a strong nearotic predisposition, and the gray matter of the brain is in a highly explosive state, it is possible that echanptic attacks originally induced by some triffing irritant may become perpetuated as epileptic sciences without discoverable cause. Where no each predisposition exists, and no lesion is present in the brain, I know of no posed that convulsive sciences can be so

firmed, and in 1882—the boy being then twelve years of age—were still going on. Occasionally he had a more perfect science, but usually the at-

perpetuated.

Patiology.-No anatomical chameters have been discovered by which the occurrence of epileptic attacks can be explained, and hence the mature of the disease is still a matter of speculation and doubt. The sciences have been attributed to both amenia and congestion of the brain, the west of the faulty action has been referred to the medulla oblorgate and the upper part of the spinal cool, to the ganglia at the base of the bosic, and to the cerebral convolutions. We have learned by experiment that become of the convolutions will induce somewhat speed, and that irritation of the cortex in the motor region will have the same effect. Nothingyal, too, has pointed out on the floor of the fourth ventricle a limited area, which he calls the "convolsion centre," on irritation of which all the voluntary newcles of the body are thrown into tonic and chara spreams. Any or all of these ports may then be concerned in the production of an realization actions. It can hardly be doubted that sometimes the convoluhous may be the sent of the nervous discharge, for in a certain proportion of cases where at the beginning of the fit the patient is conscious of his condition, the discharge occurs in a centre of special sense; also in cases were the area is intellectual the hemispheres are protobly at fault,

When the attack is distinctly reflex, the medulis oblongsts and persons contain the sent of discussed action; and the fact that in all cases there is more violence of spaces on one side of the body than on the other seems

to point to some controlling influence of the corpus strialing.

The loss of consciousness has been explained to be the consequence of unscain due to spasm of the errebul arteries and explaines, and runsel by an extension of the discharge to the vaso-motor centre. According to another theory, consciousness is arrested as the result of an inflaence which reliables from the part affected to the sensorium. The after-yang toms have been ascribed to earlienic acid possessing from partial applying and this was long held to be a sufficient explanation, although lately dealth have been expressed as to its correctness. At present, lowerer, no suplication has passed out of the region of hypothesis, and although his ferent theories may have different degrees of plansibility, none can be said

to rest upon any very solid formulation.

Symptows. The symptoms of epilepsy are very turious. Although the convulsive movements are the part of the seizure which most forcibly attracts the attention, they are not essential to the nature of the disorder. The most characteristic feature is the loss of consciousness, and this although often transacut, is very rarely completely altsent. A severe fit of spalepsy is much the same in the child that it is in the adult, and it will be unnecessary to describe minutely the characters of a secure with which everyone must be familiar. The main features of the attack are smaller to these already described as characteristic of eclampsia. It is preceded by a produceral period of variable duration, in which some charge is noted in the character, number, or expression of the patient. The contained reself selfour hats longer than a few minutes. It is followed by a stage of come, which is usually more protracted, but sooner or later the child recovers consciousness, although he may remain more or less stoped for some hours. Often recovery is marked by a profess discharge of lings! urine. In many cases the coast of the fit is amounted in the child, as it is in the adult, by an "name." In others the first symptom is vertige, are enblen flushing or pullor, or a twitching of some particular nuscle. Whatever this initial symptom may be, it is usually repeated before each attack

The more severe seizures (epilepsia gravior or haut mai) seldon appear in all their gravity when the child first becomes subject to the disease. They are usually preceded for mouths or years by a milder form of the affliction (epilepsia milior, petit mal, or epileptic vertigo) which present

itself in very many different forms,

In all threeties of epileptic vertigo, loss or clouding of the conscious ness, which may be momentary, is the main feature, and is sometimes the only symptom. Thus, a child while angaged at his lessens or his play steps all at case in what he is doing and roots for a time perfectly quiet wit dilated pupils and a strange fixed gaze; then after a few seconds he recovers himself and continues his occupation. Instead of being perfectly will, he may neutre some incoherent would or may perform some current or mexpected set. Sometimes his face may lose its colour, or a twicing may be noticed in one cheek, lip, or sychid, or his head may be drawn to one side. In any case, when consciousness returns the child is satisfactorized to the head of what has passed, and transcinctely continues the netical in which he was engaged. In other instances he merely some for the time to be purified and confused, and does not recognize his latents. In other cases, again, an ordinary penceful and affectious to boy will sublemly do

some savage or spitcful set which is strangely foreign to his real disposition, and which afterwords he is quite ignorant of laving perpetrated.

A little boy, aged twelve years, well nominabel and handly looking.

had always been well until September, 1877, when he had an attack of pertussis. During this time he noticed that objects " looked small " to him for a moment. On recovery from the whooping-rough he returned to his day-school, and one evening, when doing his lossens, he seemed all at once to be "puzzled and confused, and did not know his father."

Since then he had had some well-marked epileptic fits.

The boy was brought to me in May, 1878. He then complained of slight but constant shooting pain in his right temple. I was told that he solden had a genuine epileptic fit, but that he was very subject to attacks of mental aberration in which he did strangely spateful things. The attacks were said to last from a few seconds to ten manutes and to end in a stuper of about a unitate's duration. On recovery he was always quite ignorant that anything extracedinary had occurred. While standing before me the boy had an epileptic seizure. He turned his face away over his left shoulder, remained for about thirty seconds perfectly motionless, and then fell backwards into his nother's arms. His face continued perfectly placid and did not change colour. The eyes were closed, and when the lid was raised were seen to be turned upwards and to the right. There was a faint tratch noticed twice in the ingers of the right hand. The pulse was full and regular. After being in his mother's arms for about sixty seconds, he suddenly changed his position; and then in another minute sat up, looked about law, and seemed quite recovered.

Attacks of spiloptic vertigo may come on suddenly, or may be preceded by certain premonitory varnings, which soon come to be recognised by the friends as likely to be followed by a science. The warning may be a headache, a poin in the body or a limb, an attack of sickness, the contraction or spaces of a muscle, or some curious change in the liabits or disposition of the patient. It may provide the attack by several bours so a day or two. Sometimes it occurs without being followed by a fit. Equileptic vertigo often in time develops into the more processed form of the disease. Usually, as in the case above nurrated, rure attacks of genuins spilopes are separated by long intervals, during which the patient is affected by repeated seizures of the disease in a milder form. Often the seneral fits occur only at night and may be thus overlooked for a time. Epileptic vertigo always recurs much more frequently than the generic epileptic sciences, and the patient may suffer from many such attacks in

the course of a single day.

Between the attacks, whether of the graver or lighter form of the discase, the child may seem perfectly well both in mind and body. He may
be animated, intelligent, active, and seem in no way harmed by his affliction. In other cases, especially if the attacks have dated from infuncy,
there is manifest interference with mental development, and the child
may either have the manner and intelligence of one much powers then
his age, or he dail and stagod even to blicey. In the case already referred
to—the little boy in whem the attacks begin at the age of eleven moretle
—when four years old he was intellectually on a level with a child of half
his years. He set on the floor and played with his tops with the manner
of a halo, and had only leasued to feed himself during the previous six
months. Although he understood all that was mid to him, he could only
say a few words, and could not pronounce the letters at I, nor m. At the
age of free years he began to have daily become from a governose, who re-

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ported him as "not difficult to teach." At twelve years of age the #ts still continued, although they were, as a rule, mild and infrequent, and so curred at intervals of six weeks, two months, or longer. His father statut at this time, in answer to a letter making inquiry as to the boy's progress. that his unutal power was below the average, and that the lad was fabehind other boys of his age.

The sowere convulsions which occur at comparatively long internal secreto have a less disastrous influence upon recutal development than the milder epiloptiform seizures which occur more frequently. Also, as his been before remarked, the age at which the sciences begin is a very impostout matter. If the child has been subject to these from before the reapletion of the first year of life, his mental development is almost scribin to be injuriously affected.

Sometimes choreie movements occur in epiloptic children, for then appears to be an association between the two diseases. A charge child may develop epilopoy; and a child subject to epiloptic fits may become Dr. Gowers has published some interesting emes illustrating this positive from.

Disystems.—An eclamptic attack in infracy and early childhood presonts exactly the same characters as a fit of genuine spriepsy, therefore it is very important to decide in every instance to which class of communidiscuse the attack is to be referred. This question Im already been de-

russed elsewhere (see page 282).

Epileptic vertigo, when it takes the form of loss of consciousness with cot muscular spasm, is liable to be mistaken for an attack of synonys. especially in those cases where there is great pallor of the face. The sentures, indeed, are constantly spoken of by the parents as fainting its and we must be on our guard against this interpretation of the planeaunon. But armoope, although not uncommon in young people, is solden som except us a consequence of weakness, prolonged and exhausting lieasy, or flatalent accumulation occurring in an amenic child. Epileptic children are often robust and generally appear to be well arounded Again, slight twitching of muscle, combaned with complete loss of conaccessees, would point to epilepoy. In syncope there are no buildings, and if any nuscular accounts occur insensibility is not complete. Lustly, an epileptic attack as andden, and when the child recovers is it ignormat of what has passed; sympose is preceded by a very distinct was of "funtness," and after the attack is at in end the patient is quite away that he has been unconscious.

Cases of cerebral discuss with partial commissions may be mistaken for this disorder, but in such cases there is a history differing sidely from that of epilepsy, and other symptoms of corehral discuss are present. Be sides, in the aftack we do not find the pseulinr interference with respirator

which as so characteristic of an epileptic secure.

Even in the case of children it is necessary to be on our grant against the bysterical simulation of spileptic secures both on the part of best and girls. These false attacks can be usually recognized without difficulty. A boy, eleten years of age, was admitted into the East London Children Hospital under the care of my coffeague, Dr. Doukin, with a history of 20 which were supposed to be epiloptic. There was no negrotic tendency the family, and the patient had always been healthy until the beginning of July, when he was noticed to look puls. He was said to have been expect shortly before to a hot sun, and also to have received a heavy blow on the head of which for some time he seemed to feel the effects. On July 124

to had a fit in the night, which was supposed to be a faint. During the next forthight he suffered frequently from the attacks, often passing through as many as eight or nine in the day. The description given was that he felt giskly, funcied he saw "things going round han," made a chitch at some imaginary object, and then with a cry fell lockwards. He was said to foun at the mouth, but not to bate his tengue although he denoted his teeth firmly; to make convulsive movements with his arms as if fighting, and sometimes to lie motionless with closed eyes. The mother thought he lost consciousness. The fit sometimes hoted half an hour. It was not followed by stuper, but the boy remained for some time oppressed and weary,

and stammered when he attempted to talk.

The first day he passed in the bospital he had eight attacks. In these he struck out with his arms, dashing his hands against the burs of his hed, but always striking with the fleshy part of the fist, never with the knuckles. He also hicked out with his feet as if keeping off some enemy. He throw task his head, and his face was much flushed by his exertions. It never became blue, nor was there any arrest of respirations. The cyclols were closed and he resisted opening them. When the conjunctive was touched he winked. The popils were not diluted. He did not injure his tongue even if he caught it between his teeth, and all his movements had a cer-

tain voluntary character. There was no stage of tonic contraction. After the fit was over he lay down with closed eyes as if to sleep.

On the second day a sharp galvanic current was applied to the boy's

spine. After this experience be had no more attacks of convulsion.

Epileptic fits which occur in the night only are often overlooked. In such cases the fact that a child suddenly begins to wat his bed at night is suspicious, and if a neurotic tendency exist in the family, the symptom

should lead us to make further inquiries.

Proposit.—Cases where the attacks are well developed and occur infrequently are more hopeful then the modified scizares which continually return. Certainly they are more ansemble to treatment. The age at which the affliction first manifests itself has less influence on the carability of the disorder than it is said to have at a later period of life. On account of the difficulty in following out these cases (for if no intocliate improvement is noticed the patient as very upt to be lost eight of), my experience in this uniter is too limited to emble us to speak positively; but I am inclined to believe that the appearance of the disease during the first two years of life is of less favourable import than when it begins later. There is no doubt that at this age its influence upon the mental development of the patient is more hurtful, especially as such early appearance implies in money are not provided prodisposition.

The earlier treatment is begun after the cuset of the discuss the more farourable is the prognosis; for while the affliction is still recent, we may have hopes of putting an end to the attacks. In confirmed cases, especially if there is strong hereditary tendency, the child's prospect is but a

gloceny origi

Frankesst.—It is so seldom possible to discover and remove the cause of spileptic seizures that little hope of curing the patient by this means can be entertained. It is not, however, the less desirable to relieve the child of all stritums, and to shield him from all influences which experience has shown to be injurious. Wecaus should be inquired for; the state of the bosels should be regulated; will habits, if indulged in should be controlled; and the chall's whole mode of life should be arranged according to the laws of health. All sources of excitement, whether in games, chil-

dress' parties, or public amosements, abould be strictly forbibles; and although monotony of life is to be carefully avoided, postimes which do not over-excite the beam are to be preferred. The influence of quart sell of healthy recreation upon the disease is often seen in hospital jutients. A shild who has been admitted with a history of score epileptic seitures, occurring drifts for months, may pass soreral weeks in the surds and be escentually discussed without any symptom of his discuse basing been detected. Careful gymmutic exercise is of value in promoting healthy change of tissue, but care should be taken to stop short of nebral fatigue. With the same object pursuits which occupy the mind while they are employment to the limbs should be encouraged, such as gardening and carpentering. A useful plan is to send the child, under groper superman to a farm-house, where the tending and feeding of animals, and all the pursmits incidental to healthy country life, will be found of infinite service to him. At the same time the patient should be kept under strict control; any taste he may lures for minute, drawing, etc., should be cultivated; and without fatiguing the mind by mental labour, much valuable testination may be conveyed by conversation and the reading to him of surable books. Dr. West recommends sample clambs, such as are emile acquired. as a useful means of improving imperfect articulation, and suggests full. ing to the accompaniment of music as valuable in correcting describes of guid and spling the child to regulate voluntary movement.

The question of food is a very important one, as the frequency of securrence of the attacks may be determined to some extent by the judgment with which his diet is referred. It is a generally everywheal fact that as abundant most diet is injurious to epiloptica, for the brain-tissue which it helps to build up is of a more highly irritable composition than if a less stinualiting dietary were enjoined. Butcher's most must be taken speingly, and the food should consist principally of milk, regetables, positive.

game, and white fish.

The drugs which I have found the most useful and which I believe to have a decided influence in elseking the number and diminishing the severity of the attacks are strychnia, belindenna, and the bromides' of armotown and potassium. For a child five years of age I begin with two dreps of liq. stryelinin (P. B.) and twenty drops of tinet, hellafouns twice a disand give at night half a drachm of bromide of potassium with employe water sweetened with simple syrup. This treatment should be continued for months together, increasing the dose of the strychnia solution by our drop and of the belindegan tincture by three drops every two weeks. In this way large doses of the drugs may be administered without danger. A little boy, four years of age, under my care took for a long time arresism drops of the strychnia solution (or about one-seventh of a gmin of \$36.55 kuloid) twice a day with great benefit. Another child-a little grd mrs years of age. by gradual addition to the strength of her medicine, marked one-fourth of a grain of strychnia twice in the day. An important part of the treatment consists in the administration of a weekly or bi-morily specient, for it is essential that the bounds he regularly relieved. Accomulation of fived matter is a powerful excitant of convolute segments child of epdleptic tendencies. Moreover, the continued use of the brombs

^{*}In all cases where the bounds salts are being takes, however small the doe, to practitioned must be proposed for the occurrence of the brounds rule. Some children have a cuttom conditioners to those salts. A few small those of brounds of principal will produce in such sub-sets at alumidant craption which, if their situations is as accordance, may marks considerable perplexity.

salts truds in many children to produce constipation which may assume an obstinute character. In such cases it is useful to combine the stryclinia mixture with one or two drackins of infusion of sepan, so us to maintain a continued gentle section upon the bowels. The addition of chloral to the brounds is said to increase the efficacy of this treatment, and it has been stated that used in this combination is smaller proportion of the brounds.

is required to produce an equal effect.

Besides the above remedies other drups have been employed in the treatment of this discuss, such as the bounds and other salts of arsenic; the sulphate brounds, and oxide of mas; the oxide and nitrate of older; and argot of rye. Very good results are sometimes obtained from the use of bons. This salt may be given in doses of one grain for each year of the chib's life. Bons is best administered directly after food, for if given on an empty stomach it may excite counting. There is one disadtantage connected with the use of the remedy. In certain subjects the drug has a tendency to cause postniss which may prove obtainate.

The attack may be sometimes arrested by the inhalation of chloroteem. Any smiden shock is occasionally useful to attain the same object, such as applying ammonia to the ness or pouring cold water mon the beat. Dr.

Congliton Browne advocates the inhabition of nitrite of amyl-

CHAPTER VI.

MEGRIN.

Manage, or migraine, is a functional nervous disorder which gives the
to severe handache and other nervous phenomena, and often to masse
and bilious voneting. The decongruent is a not uncommon one in childbood, especially amongst growing boys. Treatment is of psculiar impotance at this age, for if the complaint be allowed to continue and the attacks become frequent, the patient may be almost entirely inequalitied from pursuing his studies, and his education may suffer greatly in on-

sequence.

Countries.—In many cases magnin appears to be hereditary. We often find an inquiry that one or the other purent suffers or has suffered from the derangement, or that there is a tendency in the family to some funof nervous disease. Sometimes, however, this is not the case. The diorder then appears to be acquired. In excitable children it may be induced by continued mental effort in crowded, ill-ventilated school-counand the common practice of precoing forward the collection at a very only age no doubt helps to engender the disposition to suffer from this conplaint.

Ansemin and debility, from which children often suffer some above as accord crop of teeth begin to make their appearance, probably also ad in the production of megrins, and an exhausting illness, such as typhoid fever, sometimes seems to predispose towards it. One of the most powerful of the exciting causes appears to be confinement in doors combined with searfeeding in a weakly child. The complaint is much more common arrespoths children of well-to-do parents than amongst the children of the poor

who pass so much of their time playing in the streets.

Megrin is not seen in early childhood. It rarely begins to show that before the beginning of the second dentition, at about the sixth year I

have, however, known it to occur in a little boy five years als.

Patternys — The view formerly held that the head symptoms were the corresponder of gastric disturbance is now practically abundance. But Latham refers the source of the affection to the sympathetic nervous system. He believes that if by anxiety, futigue, or other depressing case, the regulating influence of the correbro-spinal system of nerves is appaired, the sympathetic system, no longer controlled, runs not, causing contraction of the cossels and consequent anamia of the besis. It is to this amounts that he attributes the disorders of accustion which provide the explanding in. Afterwards the excitement of the sympathetic submiss and is followed by exhaustion, and the tessels becoming dilated proling the headachs.

Dr. Edward Living differs from this view. This authority member at the phenomena to the irregular accumulation and discharge of nerve-fee. He believes that a "nerve-storm traverses more or less of the second tract from the optic thalami to the gauglia of the vagus, or else radiates in the same tract from a focus in the neighbourhood of the quadrigaminal bodies."

Symptoms. The chief symptom of magrim is bandsche. Sometimes it appears to be the sole source of disconfort, but it is often preceded by a general feeling of illness and certain disorders of sensation. In many cases we are told that the child wakes up with a severe headache, and that this continues for several hours, during which he lies grouning and incupable of any exertion either of mind or body. The pain in young subjects is more often bilateral than it is in older persons, and is comparatively seldom limited to one spot or one side of the head. It may extend nerces the forehead or over the top of the head or the occiput. It is of a very severe throbbing character, and is increased by light, by noise, or by mesement. The child feels and looks successively depressed. His face is pole and haggard. He camet eat, and neally prefers to he quietly on a acts in a darkened room. His head is often hot, but his teet and hands ted cold to the touch, and he complains of feeling chilly and may shiver. The palse is small and weak and may full to 60 or 70. In exceptional cases the child feels sick and may wenit.

The headache does not always occur in the early morning. Sometimes
the patient wakes up in his usual health and it is not mail according
afterwards that the poin legion. The explaining is then often proceded
by carriers disorders of vision. Some stadard will say that objects look
small to them, others that averything appears to be larger than natural.
Sometimes stationary objects seem to be in movement, or there is partial
insunsibility of the retina, so that the patient cannot see the whole of an
object at once. Thus in looking at his mother's face he may see only the
right or the left side, not the whole. In addition to the sight, other
mass may be affected. There may be usion in the head or important
of hearing, or the taste or encil may be deficient. The child couplings
of implement odoms, or if offered milk remarks upon the pseuliarity of

me flavour.

These carrier symptoms usually subside when the pain comes on. The bradache lasts a variable time, from three or four to eight or ten bours, and then gradually subsides. As his suffering becomes relieved the child availly falls satesp and wakes well, but wearied and weak. The frequency with which the attacks come on varies in different subjects. Often they are periodical and return with remarkable regularity every weak or fortnight. Sometimes a child after one attack has no return of the complaint for months. If boys at school antice, the attacks are often very

frequent.

Some time ago I saw a school-boy, twelve or thirteen years of age, who was subject to dully headaches to such a degree as to be almost inequalitated from pursuing his education. The pain began in the morning on rising from bed and lasted all day, only orbining bounds the coming. It perculad the whole of the head, and although not at first very service, was make worse by exercise, by bead-work, and by a bright light. It was not attended by sickness. If, as sometimes impressed, the boy awoke from from pain, the caphability came on in the mobile of the day, and in this case did not subside as usual in the country. The boy was subject about once a month to bilious headaches, but these he described as different to be cedimary pain. In the latter, objects always looked large to him.

There was no dealed about the troth of the boy's statements. They were corroborated by his mother, who assemed me that the severity of

her sm's suffering during this attacks was perfectly visible in his face. The hop himself was fond of his studies and second very anxious to be exact He first took ten-grain guarana possions, but without rollef. He was then ordered to take twice a day a dose of hig strychnin (\mathbb{Q} in) and high extract of argot (\mathbb{Q} x.), and in a few days the headaches had entirely reused.

In some cases, in addition to the rephalalgia pains apparently of a new

ralgic character are complained of in the limbs.

A well-grown boy, nine years old, was sent to me from the lde of Wight by Dr. Gibson, with the history that for six months he had been suffering from frequent attacks of pain in the head and often in the logs. The boy used frequently to cry with pain which attacked him at night in the right hip and knee. He was noticed to drug the affected by slightly in walking, and seemed to have a difficulty in placing the foot family by the side of the other. It was thought, too, that the leg was a little skertened. His temperature at that time was between 90° and 100°. The pain was too, however, confined to that limb. Sometimes it shifted to the other sattrenety, and a meetimes was complained of in the back and shoulds. The temperature for a meetin was about 100°, but the boy secured will strong for the poins, and strongly objected to any restriction in his list.

When the patient cause under my own notice he was in good number and had a leafthy appearance. The lungs and beart were normal, and the organs generally gave no sign of disease. The urine was acid, of specific gravity L014, and contained no allumon. No petechie or signs of least ing were seen about the body. There was no swelling of any of the joins, nor may excess of fluid in the knees. The attacks of pain were said to some on at variable intervals. Often he woke in the morning with a we vers frontal hexdacks, but sometimes the copliability came on during the day. It slways lasted many hours. He rurely comited. When the pain first begon in the course of the day, he was noticed for some time before hand to look white, with eyes "drawn," and his sight would be affected He would see only half an object, or objects would look unanturally small to him. In the limbs the paint were chefly at this time behind the know but sometimes they affected the thighs and culves of the legs. They sees increased by exercise, and he could not walk long without faters. His appetite was good and his bowels were regular. The boy was ordered to take two minims of Eq. strychnis and fifteen of the liquid extract of ergot three times a day, and the nume was directed to employ thoreas frictions to his limbs before he went to bad. Under this treatment the distressing symptoms began to moderate, and as long as the boy remined in London-a period of several weeks-he had no return of the healstle or pains in the limbs. Before his return home he was said to have greatly suproved in his power of walking.

Dispussio.—Periodical attacks of headache, preceded by disorder of sight—these attacks listing several hours and passing off completely, leaving the child well until the next occurrence—may almost always be seemed to megrim. Children comparatively easely suffer from dyspeptic headaches, although sometimes during attacks of acid indignation in young subjects dull pain in the temples and soreness of the epitalls may be complained of. These attacks are, honover, very different from negatithe pain is much less interes and is preceded by symptoms of guitic derangement, the tongue is foul; the lowels are contined; the paint less lower, and has complexion is usually sallow. In negative the paint infinites and throughout, the face is white, and counting, if it seems, is a late symptom, coming on towards the end of the attack. The attacks, ico, often occur in the night, so that the patient, when he wakes up, finds the headache fully developed, although he had retired to rest in perfect health.

Children who are much exposed to citiated air, especially to air mode unwholesome by gas-jets, often suffer from benkedes, but in these cases the pain ran be travel to the evident rance of the attack. Again, hypermetropia is a not uncommon cause of caphalalgas is young people. Thus form of bankadae is not nonced until the education of the child is entered upon and he begins to purene regular studies. He is then forced for some boars together to exert the full formsing power of his eyes in order to remedy his natural defect, and the consequent strain upon his muscles of accommodation gives rise to a frontal bankadae which is often very distressing. But this benduche always conce on at about the same time in the day, and is evidently connected with the set of reading. It counce at once directly the hypermetropia is remedied by the use of annuality glasses.

In heatische due to cerebril disease, such as turnour of the benin, there are usually other symptoms connected with the benin which continue between the attacks of parcoysmal suffering. Squint, or nystagmus, is often an early symptom, and paraistent lesions of special sense soon begin to be observed. These are not limited to the sciences, but continue after the

headache has subsided.

Twintstood.-During the actual attack the child should be allowed to lie quietly to a room shaded from a too bright light. If he be chilly a thin consist may be thrown over him, and if his feet feel cold they should be warmed by a hot-water bottle. The hest rensely at this stage is the general provider, which is to be given in a door of ten grains it on child of ten years old) in a little sweetened unter. This remedy is said to exceed best in cases where there are very distinct premonitory symptons, especially disorders of vision, but even in these cases the administration of the powder is often followed by no read. Other remedies which sometimes have the effect of cutting short an attack are the bromile of potassium (gr. u.-xu) with sal volatile, chloride of sommonium (gr. 3.-xc.) with spirits of chloroform, and compound tineture of lawerder. Various autispusmodies, as esterion, assalutida, tincture of heabane, and the fetal spirits of ammonia, have also been recommended. In many cases -in most, perhaps, occurring in young subjects - the attack is very decidedly shortened by a those (Fig. xx.-xx.) of the liquid extract of ergot given with spirits of chloroform in campion-water.

If sickness occur and prove obstitute, it may be often arrested by a saline effereesing draught containing a comple of drops of dilute to how

cyamic acid (P. B.).

After the attack is at an end the child should, if passible, avoid clear recens and headwork, and should be made to spend as much of his time as possible in the open air. In the case of school-logs, however, it is important that their a function should be proceeded with, and we must endeadour to arrest the tendency to the attacks without any intermission of study. For cases will be found to resist the combination of strychois and extract of argus already referred to in the treatment of the two cases which have been mirrated. I was led to employ these remedies in this complaint from noticing their useful effects in some cases of cult-pay, and since beginning to treat neggins in the young subject by this method I have not with very few observate cases. Often from the time of beginning to take the undicine the attacks have censed altogether. I assuily order two or three drops of the strychain solution (P. B.) and ten or fifteen of the Equal entract of ergot with sparits of chloroform to be taken three times a day. I believe the combination of the two drugs to be more afficacions than eather given alone, but in some cases strychain given with iron has been found of value.

The child's bowels must be kept regular with some mild aperient such as the compound liquorice powder, and the slict should be regulated.

taking care that he does not take an excess of sweets or fruit.

CHAPTER VIL

CHOREA

Cours is ementially a discuss of the second dentition; for although it is occusionally met with in children under five years of age, and sometimes goes in adults, yet an enormous majority of the cases are found between

the ages of five and fifteen years.

Conserion.—Chibleen who are likely to be attacked by this complaint are those in whose family there is a tendency to neurotic discuss, and who, perhaps as a consequence of this tendency, are born delicate and sensitive, with a highly impressionable nervous system. Perhaps the mother may berself in childhood have been affected in the same way. Girls are much more prone to it then born, and a child who has once pessed

through an attack is very likely to suffer from it a second time.

The outbreak of the disorder may be determined by an attack of elementism, or by some shock to the nervous system, as a fright; or by any cause which reduces the strongth more or less suidealy and sets up memia or some cacherine condition. There is an indispatable connection between rheumatism and chorus. It is common to find a family history. of riammatic attacks. Often the patient has herself suffered from it, either in its nexts or subscute form. Out of forty-two cases (nine boys and thirty-three girls) of whom I have notes, I find distinct history of rheumatic attacks in sixteen. Others come of rheumstic families, although it could not be discovered that they had suffered from the discuse theaselves. There was a heart-murmur in treaty-seven, and in many cases the rhenmatic discuss had left evident traces of its passage in a harsh explice maraur with some hypertrophy of the heart. Still, there is no doubt that we first many cases of claren in which no history of rhoumatism can to discovered, and many rheumatic children never have cheesa. Rheumatism alone will not set up the complaint, for a poculiar in-tability of the nercons system is no doubt essential to the production of the disorder. Billiet states that in Geneva, where risemunitism was a common disease, charges was almost unknown, and according to the investigations of Dr. Weir Mitchell, it appears that amongst negro children, in whom rhoumatism is not ancommon, chorea is very meely seen.

Dr. Anotic was of opinion that the hereditary rhomantic tendency was associated with a hereditary tendency to neurotic discuss of various kinds, and capecially to chorus. In support of this view he instanced the case of nine families with decided rhomantic history. In such of these several of the children had suffered from rhomantism, to his own personal knowledge. In all of them, also, there was a strong nearestic inheritance, which showed itself in usuay cases in the form of chorus. The atriking fact consisted in this, that although many children suffered from rhomantism and many from chorus, it was not the victims of rhomantism who were especially prope to chorus. As often as not those children who had

suffered from rheumstism escaped the neurosis, while others who had never had rheumstism fell rictios to choren.

Other conditions appear to influence the incidence of the disease. The rurity of chorse amongst the little negroes seems to show that the degree of cerebral development may constitute an important element in the tradency to the disorder; for the brain in the black race is no doubt but perfectly developed than it is in whites. Again, monotony of life and the sence of mental excitement must bend to support immunity from obsern for Dr. Weir Mitchell's researches show that the disease is far less counted in rural districts than it is in towns, and in small towns than in large cities.

In a suitable subject any irritant may set up the complaint. We may in the intestinal count, and, of course, the practice of musturbation have been cited as frequent causes of this as of all other nervous disorders. Still, I council but think that the influence of the two causes just mentioned, of musturbation especially, in providing acrosss decangements in the dell has been greatly engagement. Choice is sometimes associated with grass diseases of the nervous centres. It has been seen in connection with one-brait tuberde, carebral hypertrophy, and softening of the brain; and furnishing has reported a case in which violent choreic movements were induced by menugitic involving the membranes of the cervical part of the spiral cord.

Periodogs.—The pathology of chores is still a matter of debate. In some fittal cases obstructions have been discovered in the minute arteria ramifying in the corpus striatom and its vicinity, with little points of seleening and congestion resulting from them. Hence Dr. Kirke's view, since supported by the authority of Dr. Hughlings Jackson, that shows is a consequence of minute embods swept out of the heart and arrested in the small arteries of this part of the brain. This theory, if correct, would only explain the cases which have been preceded by rheumatism, and would throw no hight on the many cases where the heart is to all appearance

healthy.

Dr. Dirkinson has proposed another explanation. He believes that the faulty part of the brain is not limited to so small an area. In his opinion the disease depends upon a wide-spread hyperamia of the nervous costs. "not due to any menhanical mischance, but produced by names malply of two kinds—one being the rheumatic condition, the other comprising unour forms of irritation, mental and reflex, belonging especially to the teryour system. Dr. Dickinson has found, as the result of post-morten examinutions of fatal cases, that all the small arteries both of the brain and spinal cord have a general tendency to dilutation. As a consequence, exdations and sometimes minute hymorrhages occur in the tissues symolyabely extromoling the dilated ressels—shown by the presence of hirely crystals and patches of selerosis. He has noticed these changes to be not advanced in the corpora striata, the vicinity of the trunks of the middle corebral arteries, and in the posterior and Interni parts of the spiral cost -principally at the upper part; and states that they are equally distribided on the two niles. This theory has the advantage that it explains the wasting of mosteles, rigidity of limbs, and occasional permanent paralysis winch sometimes follow an attack of choren.

In opposition to the above theories based upon morbid nariony, Iv. Sturges has advanced an ingenious applaration of the phenomena attention upon chores, founded upon intimate requaintance with the permission of childhood. Dr. Sturges regards choren as a purely functional complaint, arising, in the majority of cases, from some atrong across impresses

Starting from the fact that in every child placed in an embarrassing position erastional restlessness (or temporary chorea) is produced, he argues that exaggerated limb-movement is the natural expression in young subjects of emotional states; that theoretical movement is increased by the attention being diverted, as it is by some strong emotional shock; that the consciousness of this partial lies of control despens the mental impression and intensifies and extends its consequences; and, body, that want of success in directing movement impairs the child's confidence and smalls further failure. The little treatise is well worthy of person, for although it may not offer a full explanation of all the phenomenometric with the disorder, no one can refuse admiration to the ingentity of its reasoning and the graces of its style.

Dr. Haydon, of Duftin, has started mother theory. Like Dr. Sturges he refuses to accept any special organic lesion as the exciting cause of the complaint. He believes that the attack begins with a waso-motor purest, the consequence of a profound unotional impression, and that the essential symptoms are due to defective polarity or dynamic instability of the motor-nerve tracts, both intracranial and spinal. This hypothesis would explain the post-morten appearances noted by Dr. Dickinson, and would account for the phenomena common in the graver cases of the disorder.

Symptons.—The phenomens of choren counst in an inability to guide and control the muscles, so that while there is excess of motion there is absence of colleged morement. The infrasity begins gradually in most case. At first the child is noticed to be simple over her become; she shows has then her usual alacrity at her games, and is emotional, nervous, and altogether strange in massion. Soon also begins to folget, scraping her feet as she sits on a clair, or reathesty moving one of the hands about her dress. Then she is found to drop articles from her hand, and to stunble askwardly as the walks. These symptoms are niways at first attributed to corelessness, and the child is admonished and reproved; but after a time, usually from some corentricity of measurement or family contonion, it dress upon the parents that the child's control over her numeries is appared, and the matter is referred to the medical attendant.

In exceptional cases the symptoms do not come on in this invidious way, but begin with some emblemess as a consequence of fright or other about to the nervous system. But however the disorder may have begun, when fully developed the symptoms are the mass. This power of the will to control measurer action appears to be completely lost, and we find spontaneous spasmodic movement, inco-ordination of columnary movement,

and a certain degree of muscalar weakness.

In a marked case nearly all the voluntary amseles of the body seem to take their stane in this discouler of movement. The child is never quiet. First one group of muscles, their modber, contract in a jerky spannishe namer which is very characteristic. Volution is evidently not concerned in their production. They occur not only without the influence of the will tot in spite of it. The face is enriously worked, as if the numeles were attempting, but unsuccessfully, to simulate all the passions of the wind. The sychowes are multiculy bent into a frown; but it is not anger. The mouth expends abruptly into a smile; but conveys no impossion of mirth. The sychide are opened widely; then quickly squeezed together; the syes are rolled upworks describes and from side to side; for clocks twitch and the angles of the mouth we contorted with strange gringes. The best is jerbed backwards and forwards, and then pulled subtesty down to one side. The arm may be thrown alcopily forwards

by a permiter insvencent of the shoulder; the hand and wrist are violently promoted, then as enddenly supinated, and the fingers work correlation. Sometimes, by a strong effect of the will, the band may be kept quiet for a few seconds, but noon, with a convulsive jork, it is thrown again toto motion. The lower limbs, although less violently affected, are not instice. They are thrown one over the other, or are suddenly drawn up and again extended.

Sometimes the nurseless of the trunk may be affected, and spansolic contractions of the respiratory muscles may take place; or the patient may be sociletely jerked spaceds from the bed, or even thrown out of it upon the floor. In the worst cases the shall has a wild, frightened look, or semetimes a half-duced expression; speech may be impossible, and even

memory may appear to be almost lost,

In the molder cases no effort to execute a voluntary not increases the contractions; and even the exertion of standing makes control of the muscles more difficult. The more completely the child is at met the quieter she becomes. The movements are also increased by mental emotion and nervousness, so that the child is always at her worst when observed; and no doubt, as Dr. Sturges suggests, the consciousness of failure increases her helplessness. During the height of the complaint the ungovernable occuntricity of movement makes the commonest actions elifficult or impossible; for an attempt to direct any special group of master is immediately frustrated by violent contractions of antagonistic groups, so that the patient does anything but what she wishes. The child can only speak indistinctly; she cannot button or tie her clothes, or perform my act, in which accurate co-redination of movement is required. For this reason it is often quite impossible for her to feed herself, as she can no longer guide the spoon or fork to her lips. Even when fed by the name, struction to be difficult from irregular movements of the tongue; and sometimes the contractions of the gullet are interlored with in the process of seaflowing. In bud cases natural sleep is almost impossible. Even a a sulder form of the complaint the child finds a difficulty in going to sleep; but when she does at last sleep the movements ceaso.

Sometimes sensory disturbances can be noticed. Painful spots may be found in the course of the nervo-trunks in the affected parts; there may be tenderness on pressure over the spinous processes of the vertebra; or the child may complain of hypersethesis or ansethesis of the skin. Uses

sionally sight is impaired.

The chowie movements are not always general; sometimes they are limited to one-half of the body (bemichoren). In these cases either alle may be attacked; but even in hemichoren, according to Dr. Broadest, muscles bilaterally associated in their action are affected to some extent on the two sides. When the disorder is unlisteral, the muscular weakness which is seldem completely absent, is more case to recognise, as we have in the sound side a standard of comparison. When semation is impured in hemachoren, it is impaired on the same side of the body as that or which the nurseles are affected. This fact is relied upon by Dr. Broadest as a proof that the sent of the disease is not in the cord; for if it were to sensation would be impaired on the side opposite to the affected muscles.

The constant movement seems to cause wonderfully little muscler fatigue. In ordinary cases, if the movements are not exceptionally volud the general health is but little affected. The child may complain of galdiness and healtable, but appetite is usually good, and the digman functions are well performed, although the bosels may be costive. In lad cases appetite is often experience and digestion impaired, and partly for this reason, partly from the difficulty in trading the patient and the want of skep, nutrition may suffer and the child become puls and thin.

The urine has always a high specific gravity at the height of the dis-

case, and contains alumdant tires and phosphates.

The mental condition may vary, according to the secrety of the disorder, from more depression or irritability to tariturnity, obstinacy, violence of disposition, or even furious delicism. In the milder cases intelligence does not appear to be enfectled, and although the patient often has a silly meant expression, this is no more than can be accounted for by the child's own feeling of helplessness and her consciousness that her contortions and grimmers may be the subject of children.

The temperature in chosen is normal unless the complaint he complicated with a rhomostic attack, or be symptomatic of organic disease of the

nervous countres.

Weakness of the muscles has already been referred to as an amential symptom of the disorder, but us a rule it is insignificant, and may not be noticed without special inquiry. Sometimes, however, the museular weaknest assumes great prominence, and may even throw all the other armstoms into the shade. Thus a form of the disease is sometimes met with in which a pandysis or porests of one or more limbs is the only symptom complained of. For instance, a little girl is said to have gradually lost the use of her arm. The hand hangs down and is evidently very weak. The patient may perhaps by a great effort of will be able to ruise it, but when she tries to group with the fingers the pressure is very feeble. The leg of the same side is sound, and there is no paralysis of the face or jouque. Sometimes the other arm is also weak, although to a less degree. In other cases the paralysis involves the log as well as the arm of one side, but the face and tougue always comps. In all these cases, although to a casual glance there may appear to be no movement at all, careful inspection will mustly discover occasional slight twitches-faint clouic spasms-in the affected limb or on the sound side. Sometimes this is all that can be noticed, and the muscular power returns after a time without the occurteace of any confirmed disorder of movement. In other cases the clonic spanus become more and more marked as the parons improved, so that when the power of the affected limb is almost restored the motor disorder is at its beight.

There is another form of muscular weakness which occurs later, and sometimes remains as a permanent condition after the disease has passed off. It affects the muscles which have been previously implicated, and is postably due to degenerative changes in the spinal cord. The muscles

renvia weak and become wasted, and perhaps contracted.

The state of the heart in chores is very interesting. In a large proportion of cases, at least of those occurring in young children, a mitral nonmer becomes developed in the course of the illness. This marrier may disappear as the symptoms of motor disorder decline, or may remain as a perminent condition. The temperary marriers are often very variable in intensity; coming and going; heard with some heats of the heart and not with others. These are probably due to some irregular action of the pupillary muscles of the heart, the consequence of closic spacin similar to that which takes place in the voluntary muscles of the besty. Temporary mirrours, when not thus interrupted, may be the result of meanin—a condition in which the block is watery and the tissues of the heart relaxed, so that the left centrols is dilated and the mitral orifice is insufficiently closed by its culty. In these cases there is often a basic pulmonary man man. We manch my positively that a normal has disappeared and we have examined the closel after exertion as well as when the heart is quie. It is important, therefore, before prenouncing an opinion, to such the heart's action by making the child run round the score. If the heart-sough after this exercise still remain clear, we can say decadedly that the narrow law gone. Temporary massesses are much more common in girls than in boys.

Permanent marmors are in all erses, probably, the result of erdoonditis, which may be due to reincident rheumation, or may arise in the

course of the illness without rheumatic taint.

The chorest disorder runs a chronic course, but in the large majority of cases ands in complete recovery. Its progress is, however, often msignal, and the child may be better and worse again several times before control over nanocular movement is completely restored. After all involuntary spasm has subsided, a coronic absorptions of executing relating nets may continue for a time before all traces of the disorder pass ang-

Religious after an interval of months or years are very common.

The duration of choren suries greatly. If left to itself it hats from one to two months, achieve langer, although cases are recorded in which muscular disturbance has continued through life. As a rule, the disease on to greatly influenced by treatment. When the complaint passes off, recovery in most cases is complete. Sometimes, however, the most remain more or less enfeebled; the patient becomes showing, careless, and dity in her habita, and may even drift into a state of permanent weakness of mind. In other cases the contrary happens, and the intellect seems highly each by the attack. Sometimes, although fortunally very rarely, some of the affected numbers undergo strophy and contraction.

Death from the disease is very uncommon in children, but it sometimes never from the violence of the disease, the patient being worn outly want of sleep, insufficient assirishment, and muscular calcustion. Don't is usually preceded by delations and come. In the bud cases the chaing of the skin produced by constant fraction becomes a source of great dis-

comfort, and may induce an attack of fatal ergsipelas.

Diagnosis.—In a well-marked case of chosen the absence of monotory and rhythm in the movements, their abruptness and variety, their complete independence of the will, and their occurrence in spite of all effects to restrain them, make mistake impossible. The cases which began win pursus, and in which the muscular nurrement is a subsolinate and magnificant feature, are less incrediately prospassible. In such cases counts observation is often required to accurain the existence of muscular spon-According to Dr. Govers, whenever a child of the cheroic egs suffers from gradinal loss of power in the arm, and presents no weakness of free tourne, or leg, the disease is invariably choose. If the mature of the complaint he suspected, we must look for confirmatory evidence, and slight orcasional spans will be usually detected in the weak arm or in the soulone.

Proyecois.—The immediate prognesis is almost always favourable, and very severe cases in children under twelve years of age solden do otherwise than well. The worst cases are seen in girls who have mentioned and it must be remembered that the extances a sometimes appeared a very early age.

The influence of the discuss upon a child's future life has also to be considered. If the patient have strong neurotic tendencies derived from inheritance, we may feel has magaine than we otherwise should be no to the after-effects of the illness. In such cases much will depend upon the moral influences which may be throught to bear upon the child. The form of the complaint in which muscular weakness is the pronuncin and early assuption, seldom passes into very severe general chosen, but it often

proces an identicate ministrate and deficult of cure.

Finalwest.—Choren is a discoss which as decidedly influenced by trustment in the wider wase of the word as distinguished from more druggiving. Our first care should be to see that the muscles are spared all upsecondry exertion; and that the child is bept as quiet as possible in hed. We should then afternl to all the bookly functions—see that the boyels are regularly relieved; that any worms present in them are remixed; that the akin and killneys act well; that the dict is regulated with a proper proportion of animal and repotable substances; and that the child does not take too much farmaceous matter or sweets. In most cases the subjects of choren are amenic and weak, with fabby museles; not unfrequently the skin is day and nots imperfectly. To remore the skin to its natural condition the body should be outed all cover at night, and in the morning the child should be thoroughly washed with som and lot water. After a few days the normal softness and supplement of the skin will be restored. A cold doucho may be then added to the treatment. If the child be not wouldy, the douche may be given after her ordinary both on she sits in the warm water. In the case of a weakly rhild it is better to separate the onlinery washing from the invigorating The patient may take her usual both in the evening and in the morning the douche may be given as the child sats in bot water, after somplete preparation of the akin by vigorous shampooing (see Introduction). In this process the slumpooing besides preparing the skin to resist the shock of the cold water, seems to have a directly beneficial effect apon the massles.

Moral treatment is of the utmost suportance. The child is, as a rule, weakened and demoralised by the new conditions in which she finds becauli, and much may be done by kiminess, tirmness, and rightest attention to bey wants to restore the balance of her mand. At first she should be surrosed as much as possible, and ordervours should be made to anticipate her wishes, so that she may be spared the constant sense of failure. When the samptoms begin to improve, the child may be allowed to leave her bed; and games which involve rhythmical movement, such as the skipping-rops, should be encounaged. Benedikt recommends a weak constant current along the spine. The child should stand up during the application, and the current should be just strong enough to be distinctly feet.

With regard to drugs, the whole plantum opens has been emercical for remedies for this complaint. The disorder has been attacked with autoticitization remedies, or account of its connection with rhomation; with som cod-liver oil, and tonics generally, on account of the weakness and pallor with which it is usually associated; with phosphorus and other berries tonics and stimulants, to strengthen the pervous system; and with the whole long list of antispasmedies solutives, and survoice, to names nervous ancitement. Where there is great association is very useful, and significant plants and take a wine-ghosful of sound eleret, diluted with an opini quantity of water, with her dinner. Of all the drugs which have been recommended as specifies in this complaint the only one from which I have ever seen any decided benefit has been amonic, and with this only to large doses. Children bear assenic well. I have been in the hold of prescribing for a child of five or six years of age ten drops of Fosters Sution of arsenic, directly after meals, three times a day. In this doe a is much found to disagree. If the child complain of disconfort at the congrutation, and venit a short time after taking the remedy-and the are the only implement symptones I have known the medicine to producit can be given for a time twice a day or in smaller down. In over the the dose should be as large a one as can be borne without disconfort, and given thus immediate benefit will socially cause. In cases where trusts is ill borne by the stormels, or where it has been given without products bruefs, the drug may be administered hypothemically. Hammond, of New York, speaks in high praise of this memor of treating the disease, and states that then administrated the remedy can be believed by the system in doses considerably larger than if it were given to the accutic. Dr. Hammond directs that the injection should be made sively of a spot where the skin is force, such in the front of the forcars ; that cure alreadd be taken to conduct the fluid into the subcutaneous temps and not into the skin or underlying muscles; and that Fowler's solution should be used diluted with an equal peopertion of glycerine. The injection should be usule once in the twenty-four fours, beginning with we or taying drops of the solution, and increasing the quantity by one from each day.

Almost very writer on this subject has his favourite remedy. To come alworates the claums of morphia and strycinin; Sir Thomas Watser spekis in high prime of targentine. Subjects of zine is said to be a specie by some; others prefer brounde of potassium or chloral. Without gone through the list of drugs specially recommended, it may be sufficient a say that it is now generally held that the broundes are most useful in case where the accountries are violent and exhausting, especially if there is my reason to suspect contain excitement; that rine should be preferred by florid children and the more nexts cases, iron for the public subjets wakened by chronic illness, and that arsenic given by the nearth effect its most repad cases in the simpler forms of the discuss where the travelle disturbance is not entrance. In cases of scale chorm department upon next and consequently a leigh temperature. Dr. Jacoby recommends the liquid extract of opticities in half-drachin doses to a child fire years of age, three or few times

a day, and continued for anna weeks in succession,

In very had cases, where the movements are violent and increases when the child cannot sleep, and takes food with the utmost difficulty, the loss plus is to put the patient under chloroform at stated intervals and fool for through an elastic catheter passed shows the guilter. In such case a sufficient quantity of simulant should be supplied with such used. At night-time, in order to insure sleep, a full dose of morphia should be gree hypothermically. Much benefit is sometimes derived from Jaccolil's plus of spraying with other the whole length of the spine twice a lap. De Austic records the case of a boy, aged six years, who had been reduced by the violence of the discuss into an almost hopeless condition. At legaths other spray was begon. The boy at once began to improve, and in a fortnight the discuss was at an end.

Obstitute cases of choice may be sentitines cared by the planerigants by Dr. Wear Mitchell and slidy practiced by Dr. Playfair in case of appracted hysteria in women. The plan consists in rigorous champeas to "massige" of the muscles, so as to excite a massive nanceles water, and

in supplying the waste so induced by regular and excessive feeding. The shampeoing must be carried out encryptically. It consists in lineading the numeles and making passive soorments of the joints. This should be done several times that for half an hour on each occurion. At the same time the patient is fed with large quantities of milk, next, eggs, and other sourishing food. By this norms all the more violent insvenients are quickly controlled, the extremities become warm, the child sleeps noundly and rapidly puts on flesh.

In every case where the movements are violent care should be taken that the patient receives no injury from knocking or braising or chafing the skin. The sides of the cut should be publied; and the child should be confined to the bed by a folded shoot passed over the chest and tied

underneath the cot.

When the discusse has possed off, means must be taken to discipline the mind by a judicious system of education, both moral and intellectual, and the child should be encouraged to take part in active games and out-ofdoor exercises. A change to the senside is often useful to complete the care.

CHAPTER VIII.

IDROPATHIC TETANUS.

Taraces or lock-jow, as it utuacks new-born children, is a disease of which in England we know little by actual experience. A few cases are, icosess, seen from time to time, and it is not unlikely that but for the tender age of the infant attacked, and the rapidity with which the disease harries to a close, more examples of the makely tright cone under observation. On tainly, at the cost and of Lembon, in the Irish quarters, where squake mit poverty are often extreme, it is strangely common to hear of several infant of a family larving died a few days after birth from "convulsions." Such cases have probably come under the notice of no more experienced charver than an acciliancy midwife, and it is quite possible that many cases of infantile tetamus may thus escape recognition.

The discuss consists in an intense irritability of the spinal and the notor nerves which proceed from it, throwing the whole body into violent tonic spaces. Infinitio telanus runs a very acute course and generally ends in death. It is common in the West Indian islands, in South America, and in the southern portion of the United States. In these warm climates it attacks by preference the new-local children of the negro population. It is also occasionally found in more temperate zones. The island of St Kilds in the Hebrides has long been notorious for its encourous infinit more tally from this cause, and sometimes in other parts of Europe the discus-

occurs sporndically or even in occasional spidenties.

Geometrica - Much speculation has been bestored upon the etiology of the disease as it occurs in new-born infants, and many flavores have been devised to account for it. The fact that the symptoms appear within a her days of birth seems to point to some transmitic cause for the illness, and suspecion unfamily fell at once upon the remaint of the newly divided asbilical cord. Hence the discuse has been ascribed to philebilis of the say The explanation has, however, been proved to be errosson. hilisal veins. Dr. Mildner, of Prague, has collected forty-six cases of information of the tembilical vessels which ended fatally. In only five of these dol convolute form part of the symptoms, and in no instance did the containions bear any re-rabbance to those characteristic of tetanos. Again, philinis of the umbilical reins, although an occasional accompaniment of infantile tetural is more often absent than present. Inflammation, then, essent be a cause of the disease, but still it does not follow that tetanus is independent of the condition of the cond. Even in the adult influentation of a warn is not essential to the production of traumatic lockjew, for the unitaly law been known to occur in cases where the wound had undergone healthy mostrication.

Mechanical causes for the disease, each as blows or accidental triprica and the use of too hot water for the bulb, have been suggested by sees authors. An eminent American writer has attributed the diseaser to presare on the modulla oblongata and its nerves, through displacement oc-

lie for days together with the back of his head upon a pillow.

Although the disease may arise from these or other transmitic curses, it seems likely that on explanation of the phenomena is to be found in general rather than in local agencies. The influence of sudden changes of temporature in producing totanes hardly admits of doubt. In all countries where the complaint is provident there are rapid alternations of temperature, the heat of the day possing smaderaly into the ecol of the evening. On this account interruption to the functions of the skin has been suggested as the innuediate cause of the disease. In the same way chilling of the surface by exposure to cold and wet has been said to be capable of exciting the tetanic convulsion. Of all causes, hearens, to which the discuse has been attributed foul air generated by fifth and imperfect ventilation is, perhaps, one of the best established. The often quoted case of the Duhlin Lynng-in-Asylum seems to prove this conclusively. Before 1772 nearly one in every six of the children born alive in the aerlum died, and the cause of death was almost invariably tetamos. In that year Dr. Joseph Clarke introduced a complete system of rentilation into the hospital. This consequence was that the mortality immediately fell to one in ninsteen. Later, the proportion of deaths was still further reduced to one in fifty-eight, and of those who died little more than a minth died from this disease.

In St. Kilds the high rate of mortality may with much probability be attributed to a similar absence of fresh air and eleminoses in their honces. That some cause is there in existence which does not obtain in the neighbouring islands is evident, for children born of nations of St. Kilds out of the island escape the discuss, and hence the occurrence of the affection cur-

not be attributed to intermarriage or any hereditary influence.

Dr. Holland in his "Summary of the Diseases of the Iccimbers," rereads the frequency of trismus unscentions in the island of Heimaey, one of a group situated on the southern coast of Iceland. He states that shoost every infant born on the island died of this disease, and that consequently the population was supported almost entirely by immigration from the mainland. It appears that there was no regetable food upon the island, and that the natives lised principally upon sen-tends which they sulted and bureflied. Dr. Holland attributes the disease to irritation of the bowels tunted by the practice of feeling the infants shortly after both upon a strong and only animal food. He fortifies his opinion by the fact that at St. Kilda, where the dist and mode of life of the natives resembled those permitting at Heimaey, the disease was equally prevalent and equally fatal

Teturas is occasionally seen in older children, as a consequence of some out, or bruise, or other injury, as is the case in the adult. Sometimes it

w diopathic, and is then probably rheumatic in its nature.

Moriel Assisting —Extreme injection of the small vessels of the spinal cord and its membranes, with extravasation of blood into the cellular insert around the theca, and also into the carrity of the spinal arachneid, has a case which died in the East London Children's Hospital, under the case of my colleague, Mr. Parker, there was a striking absence of congestion of the cord and its membranes. On opening the spinal canal the loose consective tissue around the cord was found to be occlymented in patches from the middle to the lower end of the dorsal pertion of the cord. On opening the spinal down mater, the parameter did not present any annual appearance. It did not appear almormally congested. The cord itself

was firm to the touch. On cutting into it, the gray matter was deady suspeed out by its pink solour when compared with the white substance. There were no extraorastions into its substance at any point.

In some cases in adults Rekitansky and Dennee have observed a de-

relepment of connective tissue in the spinal cord.

Symptonic.-The disease generally begins on the third, fourth or telday after birth. It is muchy delayed longer than the tenth. The first symptom mentioned by the mother is usually that the child curve tabe the breast, or that if he attempt to do so he quickly abundens the tripple Sometimes the milk is noticed to min out of his mouth, as if he had a diffculty in availouing it. Soon the jaws become stiff and the face has rigid, pineked look. The spanos extend from the muscles of the jee is the neck, the back, and finally the limbs, so that in a short time a gusen ranscular rigidity is observed, which comes on in paroxysus, hate for a variable time, and then results to return after a short internal. The infermay after a pitiful whimper when the paroxyem begins, but at once the muscles become staff and hard, the uyes are tightly closed, the jue are set, with the mouth a little open, the head is drawn harkwards the bush are clearly d, and the feet are flexed upon the ankles. Sometimes there a opisthotopos. If the paroxysm is short respiration may be suspenied and the face become dusky, but in the longer attacks breathing generally continues. Each attack lasts from a few seconds to half a minute, and the intervals between them may be a few minutes or longer. In the interval the spasm does not completely relax, there is some limitity of the fee. the head often remains more or less retracted, the bunds continue clearled and the thumbs are twisted inwards. At this time a touch will frequent excite the recurrence of the parotysts. If milk is put into the position shild may be unable to swallow it, so if he attempt to do so the effect may being on a return of the spoons. The want of nourishment and the exhaustion induced by the convulsions came rapid emigration. Is unit cases the interval between the attacks becomes shorter and shorter, and the child sinks exhausted, or dive asphysiated from spasm of the traster of respiration. From the very beginning of the attack the child cases entirely to ony. Occasionally he may whitness from 19.5 to 101 or 102 never heard. The temperature usually varies from 19.5 to 101 or 102 It may fall below the normal level before death, or may rise to 100 or 100°. In a case recorded by Ingensky the temperature in sourced the attacks reached 107. In this case alliamen and casts were found in the uring and the hidreys, after death, showed marks of acute replicits, with extra assticus of blood.

Death usually occurs at the and of a day or two. The infant willrecovers if the paraxyone have appeared before the third day after limit. If the child live six days after the appearance of the first symptoms, for

case may terminate favourable.

In Mr. Parker's case, before referred to, the arres were neficed to be stiff immediately after high and they resuld not be fixed. For a day of two the child surface without difficulty, then the null was observed is run out of his mouth. On the fifth day, soon after the involving fifth he begon to have slight quants. If the nipple was put into his mouth to speaks were immediately excited. On admission on the fifth day the crucial boxes presented no absormality. The child by with the crucial boxes presented no absormality. The child by with the crucial served up. It is mouth was not quite closed, but any attempt to ope a maler brought on a telande speaks. There was regions surdances. When stripped, the child's body was seen to be covered with hamostalage for

hites. The embilicus was slightly red and inflamed, but there was no discharge from it. There were no marks of violence, nor any sores of any sixed about the body. The limbs were rigid and sustratehed the legarither less so than the arros; the bonds were elemented. The abdominal and thoracic walls were also rigid during the spoom, but they partially related after the spoom had passed off. The limbs never quite related during the intervals. The spooms were of short duration (a quarter to task a minute), and affected the whole body at once. They recurred very rapidly, and the slightest touch sufficed to bring them on. Requiration was quite affected during the processor. There was no opisitiotoness. The temperature, taken in the rectain, was 103.8°.

The use was treated with the calabar bean extract, of which one-sixth of a prain was given every half bour by the mouth; but as the infact was made to swallow, probably very little of the remedy was really introduced into the system. Still, possibly some was also rived, for offer several down the child opered his eyes and was able to smallow milk. He was then placed in a warm both and the bean extract was given every two hears. The infact had some spasms during the bulk, and a few rehers shortly afterwards, but in the course of an hour they created entirely and the child seemed to be going on well, when suddenly a violent pure vivo cause on and he died applyxisted. The temperature varied, after the first, between 100.8° and 102.1°. The child lived only about sixteen hours after his almission into the hospital.

In fatal cases the duration of the illness is usually short. Scenetimes, the indust dies in a few hours, and in the majority of cases all is over before the end of the second day. More easily the child makes a better struggle for life, and only successes on the eighth or ninth day. When the discuss takes a mild form from the beginning it may terminate favour-

ably after a more or fess serious illness of two or three weeks.

When fetures affacks children after the age of infancy, the symptoms are similar to those which are seen in the adult. They are well illustrated by the following case of idiopathic tetures which was under my core in

the East London Children's Hospital.

A boy, aged ten yours, complained one day on returning from school of chilliness, and shreered. For the next three days he seemed poorly and complained constantly of feeling cold. On the fourth day, in the evening, his weak became stiff, and the stiffness extended to between the shoulders so that he held his head harkwards. On the following day (the fifth) he began to "get straight" from the hips upwards, and the stiffness soon extended to the feet. Although very ill, he would sit up in a chair during the day, and on one occasion, on being ruled to his feet at his own request he became perfectly stiff so that his nother could not bend him or replace him in his chair. After about a minute the rigidity subsided and he reasoned his sent. He complained of no pain except from his tengue, which he often let in those attacks. After this the stiffness returned wisnesses he moved. His mind was quite clear, but except for asking for what the wanted he did not talk. The bessels were much confined.

The boy was admitted into the hospital on November 12th, two weeks after his complaint of chilliness. It was noted that he had no marks of external injury. His face was drawn from contraction of the muscles, and there was rises surdonicus. Obcasionally his body became quite stiff, his arms and legs right and extended, the abdominal muscles hard and the muscles of the nucles contracted. There was no opisthetones. These attacks generally come on at night. On the night of November 14th he had

actoristic

nine of the spaces, on the 15th, ten. He often hit his tengue. Bures the first few days his pulse was 80; temperature, 99-101'; respense,

29-24. The lungs and heart were bealthy.

On the 16th, at 6 c.s., he began to take calabor bean extract, example of a grain every hull hear. This reduced has pulse in a few hours in it. On the 17th it was noticed: "Abdominal muscles feel hard, and there is much rigidity of the back of the neek. No stiffness of joints of small large. Can only partially open mouth, when he does so the muscles make the chin become very stiff but are painless. Keeps his eyes closed although light is not distressing to them. Checks and cyclids rather red. His 6b has a peculiar dimentespecially in smallesting. When asleep, the muscles in much less rigid than when he is awake, unless during the actual quantities regard than when he is awake, unless during the actual quantities force but not in rhythm; respiration, 22."

During the whole of the 17th the boy had only one partayen. In the course of the following night he less three attacks. At 10 s a, on the night (the 17th), his palse being only 48, the medicine was codered to be given every hour instead of half hour. After this the sparse because fever and less severe and the rigidity of the recodes gradually related. The spasses still continued to occur at three during sleep, but they assistly subsoled at once when the child was roused. The beau extract on stopped on the 25th. His improvement continued and the patient was pronounced convoluncent on December 12th. The last numbers to become

completely relaxed were those of the abdominal wall.

Disposance—Infantile tetames is a discuse which it is not empto mache. Violent purceyons of tonic rigidity in which the javes are set, the cheet is fixed, the muscles generally are stiff and hard, and the face because deligned drawn—these sciences occurring without training or sign of chargeness and followed by intervals of only partial relacation, are very dis-

In older children it is important to distinguish between tetams of the symptoms of strychnia poisoning. According to Sir Robert Circuism tetairm loss not kill so quickly as a posiciona siese of strychia. Menure: in totarns the symptoms become developed gradually; in strychais jet soming the convulsions very rapidly become general, and a partied fit is do. veloped in an hour, or even more quickly still. If stryclein have been given in carefully graduated down the distinction is less easy, lat end in these cases there are very decided differences. Tetanus begins grain ally and always runs a configurous course. Sir B. Brodie declared the in had noter known a case of tetaura to begin, then exhade, and then began again in twenty-four hours. This continuity of symptoms would be in cult to simulate even by the most carefully graduated doses of the post-Again, in strychnia pononing the upper extremities are affected early; is tetamis they are implicated late, and the singers last of all. The faces too, of tetance is very peculiar. The foreboad is wrinkled perpendicular and transversely, the sychrons being drawn towards one mether is a rell remarkable manner. The eyes are not fully opened; there is a partie look "which is very characteristic, and after a time the eyehal become pointfully sunken from tetapue contraction of its muscles. In environ

Proposing the sychids are widely opened and the cyclotic protests.

Proposition—So few children recover from this disease that the 1975 noses is always very unfavourable. Dr. Lewis Smith has collected still cases, of which thirty-two deed and eight recovered. This is a large pro-

portion of recoveries, but statistics pathered from published cases alone probably represent but feebly the final nature of the illiness; for in so mortal a disease it is likely that many more accesses than failures would be placed upon resort. Early occurrence of the symptons after birth, great violence of the spasses, observes of the period of remission, and a very high temperature should excite the gravest appears after the most favourable cases are those in which the disease appears after the first week has passed. The symptoms are then as a rule less server, and sometimes degleration is marketed. The ability or imbility of the child to availow is an important element in the case. If he still continue capable of swallowing milk from a spoon, we are justified in entertaining some loops of ultimate recovery.

In an other child the prospect is more favourable if the discuse be idiopathic than if it follow upon an injury: but in any case we cannot look forward without serious anxiety to the termination of his illness.

Treatment — In every case of infantile teranus our first care should be
to remove all sources of irritation, whether internal or external. The
infant most be kept quiet in a room curvially durkened, and the bowels
should be referred by a good them of castor-oil, or if he cannot swallow, by
a repions enems. Next, the rapid emanation must be counteracted by
regular locking. The great obscale to efficient nutrition is the space of
the nuncles of deglatition which makes evallowing so often impossible.
Infants cannot be nourished per rectum. It is therefore advisable to put
the child under chloroform at regular intervals and administer his mother's
milk, if it can be obtained, or if not, uses milk, cow's noik and budywater (equal parts), or other suitable food, through an cluster calabeter
passed down the guillet. In this way three or four ounces of food can be
administered every three hours; and with each quantity it is advisable to

mix afteen or twenty drops of sound brandy.

The third indication is to control the spesses. For this purpose some form of seclative most be resorted to: Opinm, alone or combined with anti-spasmolics such as sulphate of zinc or assulatida, Indian hemp, and bellisfoana or its alkaloid have been all employed. Whatever form be used, it should be given with the food through the entheter or hypotermically in frequent small doses. Chloroform elecks the purceyons for a time, but they return when the effects of the anasthetic lase passel gent. Good results have been obtained from the extract of calabar beau. In Mr. Parker's case, previously narrated, even the small quantity of the remedy absorbed seemed certainly to prolong the intervals of remission, although the seizures when they occurred were not diminished in severity. The drug should be administered hypodemically if the child entact avallow. The dose should be one-twelfth of a grain by the mouth, or contwentieth by subcutmeons injection, every hour or two hours, watching the effort. It is advisable to produce some decided effect upon the heart and langs, reducing the regulity of the pulse and the breathing, if my good result is to be hoped for.

Of all the drugs which have been recommended for this disease the most favourable results appear to have been obtained from chieral. Dr. Widerhofen claims sex recoveries in twelve patients by the use of this agent, but the only case referred to in the short extract from his lecture which appeared in the Lowest, was not of a very severe sharacter, as the symptoms rame on late and deglatition was not interfered with. In a case which was under not care in the East London Children's Respiral this remedy was suppleyed, and although the buby died the effect of the drug

upon the spanes was decidedly encountging. The difficulty appears to be to regulate the dose accumately so us to dominate the sciences without producing too serious a depression. For the notes of the case I am indebted to Mr. J. Scott Battanis the Besident Medical Officer, who watched the

child with great attention.

A little boy, four days old, of locality brish parentage, was admitted October 18, 1881. The father and mother with three other children besides the patient occupied one room, which was said to be clean and large. The bod in which the child by with his mother was placed in a strong danight, of which the scenar had constantly complained. The child was born to all appearance healthy, and took the breast well until the day before admission, when he was noticed for the first time to be smalled such. That night the indust slept badly, crying and drawing up his lage. The cry was, however, strong even on the norming of admission.

When first seen (October 18th, noon) the boby was dirty but seemed well nourished; must apparently healthy; countd bones normal. Every fee minutes spreams occurred of moderate severity; they did not arrest the breathing. In the spinors the legs were drawn up rigidly, the foreigns were flexed, the fargers were stretched out and widely separated, the Ipa posited a little and there was risus amboneus, the jaw was fixed and the head was slightly refracted. An attempt to open the eyes or mouth aggraented the spasors. At this time the person who brought the child refused to leave him without the consent of the mother. At 6 r.m. however, be was brought back and admitted. He had taken no feed since H no. of the previous evening. The spasses had continued all the afternoon and were more seriore than at first. The honoris teeps relieved by spena of a large quantity of card, and the child was put into led with an ios-lag to the spins. Between 7 s.m. and midnight three susmans of milk, containing, respectively, four grains, six grains, and six grains of chlord, were administered. After three hours the ice-bag was removed. At midnight the child was no better. As he remained unable to semilow, he was put under allowoform, and three ounces of his method's milk with four grains of ablord were rejected through a cutbeter passed into the storistic. This one reported at 4.20 a.m., after which the eatheter was pussed without dificulty and without chloroform, and between two and three ounces of his mother's milk with ten drops of brandy were given every two or there hours. During this time the conventions had suried in intensity as well to in number. They were manifestly influenced by the chloral, so that from 5 am (19th) until 10 am he slept quietly.

At 10 a.m. (October 19th) the limbs were quite released, and the claffs face was somewhat Junky. Very little air sermed to be entering the large. On passing the outlester into the atomsch very little space was excited.

At 2 n.u. Mr. Buttanes was cout for, as the infant was thought to be deed.

On making artificial respiratory movements the child gave a gasp. From
this time until 5 n.u. he continued to breathe eight times per mirate.

The conjunctive were insensible, the surface was cold, but there was less
symmetric. Some brandy was administered. At 10 n.u. his condition remarked
unallisted, except that the respirations were now reduced to four per mirute. No more spasses had occurred.

On October 20th, at 2.30 s.m., the child was again thought to be stud. but artificial respiration revived him for a time; he, however, finally stake

about 2 a.u.

The temperature was 98° on admission (October 18th), 20° at 7 at On the 19th at was 100.6° at midnight, 99.8° at 2.15 s.u., 94.8° at 5.80 s.u., 15.8" at 7.39 s.u., and 96" at 10.30 s.u. No post-mortem examination was allowed.

In this case the remely was, no doubt, administered too energetically. It would have been better, after the first door or two of the clideral, to have given the drug in smaller quantities, even if it had to be repeated more frequently. Bad this been done, the result might have been different. There been unable to find any rule by which the administration of the remely may be regulated. Whether it be advanible to proceed to actual narcotion, or whether it is preferable to stop short of that point, must be a matter for individual experience to arquire, and in this country such experience to difficult or impossible to obtain. Widerhofen directs or, j-ij by the mouth, or gr. ij-iv by the rectum to be given "at the time of each onset of convulsion." This direction is too eagus to be useful as a guide in practice, and can searcely be intended to apply to a case such as the present, where the intervals of remission were so brief.

Tobacco and morning have also been recommended, but must be very dangerous drugs to use at so early an age, even when, as in this disease, there is such a remarkable tolerance of solutives. External applications are sometimes employed. Warm boths and cold packing have both their advocates. In Mr. Parker's case the warm both seemed to have a docadedly

unfavourable effect upon the infant.

CHAPTER IX.

CONGENTION OF THE BRAIN.

Consistence of the brain is a term which is often used very locally, and is probably applied to various forms of illness. Writers who have don't with the subject of disease in early life differ curiously in the importance they attach to the subject of coroland hypersenia, some ultributing to it most of the convolute diseases to which young children are liable; others as Valleix, asserting that the puthological condition is almost unknown in

inducey.

The view formerly held that the quantity of blood circulating within the engines is constant and ennot be influenced by altered condition of the body generally, has now been presed to be erromeous. The researches of Robin and of His have shown that surrounding the cerebral blood-ussels are lymphatic alcaths which communicate with the Ivanhatics of the pin mater, and are several times the size of the blood-reside they endose. These lymphatic canals contain a fluid which increases or distribles in quantity reconling to the varying distention of the blood-resola and must therefore allow of great variety in the amount of fluid circulating within the cranial cavity. There is no doubt, therefore, that hypersuin of the blood-sessels can take place; but it does not follow became sex dences of this congestion are discovered in the dead looky that it was be cause of the symptoms from which the patient had suffered. It is consequ in cases of slowth from convaisions to find engagement of the week of the brain and membranes, but this engargement is probably as often a consequence of the convolutes as a cause of it. Still, every physician practising amongst children most now and again meet with cases in which he finds a group of symptoms, suggestive of some femporary increase of presents upon the brain. These symptoms either pass of after a time and the child recovers, or they increase, the patient dies, and an exacusation of the skull earlity and any but a hypermule state of the cerebral result with an effusion of serum is seen to account for the illness. These samptoms are therefore supposed to indicate convestion of the lean but there is probably some deeper and less obvious cause of the inquirment of function, for although this pathological condition may be invariably preent, it cannot be held to formish a full and satisfactory explanation of the phen mean.

Conceived.—Correbral congestion may occur in two forms: An estrelarpersonia from increased flow of blood into the brain, and a positive hypersonia from obstruction to the return of blood from the intesion of the shall. Many different causes have been enumerated as giving rise to the condition, but it is difficult to accept all of them as determining agents in the production of corolaral congestion. Dentition is usually said to be a cause of vascular engargement, tocause the teething process is often accompanied by convulsive seigures; but in these cases, if constant hypersmin occur, it is as likely that the convulsive sciences are the cause of the congestion as that the congestion determines the fits. The intense congestion of the face, and the swelling of the veins of the neck, which are always present in a convulsive fit, show that there is impediment to the return of blood from the head; at the same time the heart's action is excited, and blood is being propelled rapidly into the cramium. There must be therefore great sugorgement of the vessels in the region, and if the fits are frequently repeated and the child remains for hours, as often happens, in a more or less convulsed state, the engaged vessels must relieve themselves by officion of secure, and perhaps by minute homorrhages. Pressure upon the brain set up by this means is sufficient to account for the stuper, squinting, etc., which are often found to follow a convulsive science; but the officions are in all probability like the wnous congestion itself, a consequence rather than a cause of the nervous commution.

Even in cases where the cerebral congestion has preceded the convulsion, it seems probable that something besides more distention of vessels, unless this be extreme, is necessary to give rise to the schamptic source. Some time ago I was asked to see a little child, aged six mouths, who had impetigo of the bend. The cervical glands of both sides were embrged and had set up-considerable pressure upon the veins of the neck —enough, indeed, to induce great colors of the head and face. In this case, where there must have been senous impediment to the return of blood from the brain, there were no signs of nervous disturbance. So in cases of unlarged bronchial glands with pressure upon the vascular trunks in the chest, ordems of the head and neck is sometimes produced and some heaviness may be complained of; but correlations are not a symptom

of the disease.

It appears probable that in many cases, in addition to the engarged state of the blood-weeds, small embolisms or thromboses in the minute arteries and capillaries of the besin may be agents in the production of across symptoms. Dr. Bastian found this condition of the brain in persons who had died whilst enflering from defirient and come in the course of acute specific discusses, and has recorded his belief that minute and widespread congestions are often a consequence of these obstructions. There is no reason to suppose that young children differ in this respect trop of the persons; and probably the convoluirs sciences which often occur towards the close of measles, southtins, and other indectious fewer, may one their origin not to the accompanying conjection, but to minute plagging of the corobral explinates. Such vascular obliterations, if widely distributed, must produce, as Dr. Bastian remarks, "total disturbance in the incidence of blood-pressure, and in the conditions of nutritive supply in the recessfulness gray matter of the brain."

Besides the couption fevers and convulsive attacks, exposure to extreme best and cold, or direct riolence applied to the head, may be, directly or infractly, determining causes of scate hypersonia of the brain. A passive congestion may be induced in the shift during a difficult labour; it is searctimes the consequence of energetic expiratory effort in whoopingcough; it may be set up by discuses of the heart and lauge, or by other causes which interfere with the return of blood from the bead; and it may be induced by the pressure of intrarantial growths upon the cerebral

sinuses and veint-

Harbot Anatomy.—A congested brain has a smollen appearance. The dura mater is tightly stretched, and if shits are implemently made in the membrane in the process of removal of the culvarious, the organ bulges through the artificial opening. The convolutions look broad. They are flattened by pressure against the latter of the shall, and their solid are no rowed. The vessus of the par natter are engaged, torthous or two temporare; and the small vessels are filled to their minute runifications. The cranial sinuses are distended with thick, dark, partially coughisted blook and the choroid playuese are also congested. The gray natter of the besing is also darker than natural, and its section shows fine data from the injected search. The white substance also centains numerous red parts and constinues the jearcheal those is coloniatous, with excess of fluid in the sentricles. In cases where the composition has existed for some that Differentiates of blood pigment may be found lying outside the used within the lymphatic should. These are described by Bastian is makening grains of a dark often or uniter colour.

Symplosis. Signs of general irritability of the nervous system such as heat of head, frotfulness, distlike to light and noise, disturbed deep, startings and twitchings, have been such to constitute an early stage of ore-berd congestion. Such symptoms in impressionable infants frequently accompany digestive disturbance and teething, but are more probably due to reflex irritation of the normalized than to engagement of the conbral expillance and veins. They are often, perhaps, arrangamied by increased activity of the cerebral circulation, but are not necessarily induced by it. The so-called "irritative stage of terebral congestion, then appears to use to be one which cannot be clinically recognised, at least I know of no evidence to show that the symptoms said to be characteratic of this stage have any necessary relation to an engaged state of the care-brail encountries.

The common form in which congestion of the brain is met with in practice is that in which as infant who has been taken with visital reason sions from teething, or other form of reflex irritation, is left dromy and stoped after the tax have subsided. Instead of cleaning quickly away the beariness continues. The child has with his head retracted on he shoulders, senetimes be someta, and he may even squar. In these case congestion with effusion of sensity into the lateral senticles, and perhaps the substance of the brain, appears to be an important agent in the production of the symptoms. In cases of death we find excess of fluid in the ventracles; the volume of the brain and the particles; the convolution as fluitmed, and the vessels of the brain and the particle of the convolution as fluitmed, and the vessels of the brain and the particle of the children which seems to have been of a similar kind, eithough it anded differently, is the following:

A little boy seven months old, a strong, healthy-looking child was being brought up at the breast, and had cut four of his toth was sublenly attacked with consisting and purging. The symptoms appear to have been severy, for after a few hears the child fell into a lethingle state in which he by for four days. At the end of this time is held a fit which lasted six hours. For the next ten days he was drong and half stopefied. His bowels were contined and once or twice he can itself.

When I saw the child, on April 8th, he was lying in his mother's arm with his eyes half closed. His face was very pule, the pupuls were equilibrated, and inconvable: there was no equint; the featuredle was very elevated and tense; the healt was retracted and the muscles at the tack of the neck felt rigid. The temperature is the rectum was 95°, the puls and respiration could not be counted for irregularity. The image and hart

He remained in this state, vomiting occasionally, until April 12th, when the sickness ceased and the patient seemed very much better. When seen on the 15th he appeared to be quite sensible. The pupils were dilated and noted imperfectly with light, i.e., when the cyclids were sufdenly opened the pupils could not be seen to contract. The fantanelle was now either depressed. Poise, 168, very weak but regular. Skin cool. Head not retracted. After this the child won became quite nell, except that for some time afterwards he had a peculiar stare, the eyes being directed downwords, so as to show a rim of white above the corner.

It is difficult to my to what these symptoms were due if competion of the beain and effusion of fluid induced by the convalsion were not the cause of them. The menual temperature second to exclude any influence tory condition; while the summolence, the immobility of pupils, the swellen and tence state of the fortunelle, and the retracted head pointed to some increase of pressure within the shall cavity. If we assume, on the strength of Dr. Bratian's observations, that the congestion is the consequence of wide spread minute embeli obstructing the circulation through the brain, the frequent occurrence of symptoms such as the above is less difficult to account for.

Cases have been recorded and attributed to cerebral congestion in which loss of consciousness, with pyrexia, squinting, and general paralysis accurred, and passed off completely after a few days or hines. It is difficult to understand how a simple found competion alone can give rise to aleration of temperature even in a young child. Such cases are obscure, and no sufficient explanation of them has yet been arrived at.

Many cases of so-called congestion of the brain are probably the consequence of thrombosis of the executal sinuses. Dr. Lewis Smith has shown this to be sometimes the case in pertuase; and convolutions due to other cases may be accompanied by similar electractions to the versus passages within the skull. Exact observations upon this point are to be desired; but it is probable that increased knowledge will in somes of time greatly diminish the importance of more fulness of cerebral veins as an

agent in the production of nervous disturbance.

Dispersis. - When we see a child who is suffering from symptons indientive of oppression of the brain, such as drownings, immobility of pupils, an elocated tenso foutabelle, and a retracted hand, we have to distinguish the gase from one of menipritis or other serious corcleal discuss. The history is here of the atmost importance. If the symptoms began with a convaining attack preceded merely by signs of pritability of the persons erstein, such as usually usher in a fit of echapsia; if the child be the subject of rickets, and if some cause such as swellen inflamed guars, studyis, or direction derangement, can be discovered to account for the pervous ecizage, we may consider the symptones to be due to filling of the cerebral. tysicle and effusion of serum into the emainl cavity. If the temperature he low, it is a confirmation of this diagnosis. Often, however, in these cases the limit of the body is increased as a consequence of the came which has provoked the convalsion. Therefore a high temperature is not necessurily to be interpreted as easing any doubt upon the accuracy of this epinion. In simple meningitis, which begons with violent convulsions. followed by dromainess and stupor, there is often a history of elegonic storrhees; and in most cases the convulsion has been preceded by signs of pain in the hand. But besides the lastory, the symptoms in the two discusses differ in important particulars. In meningitis the child is at case seen to be seriously ill. He refuses his fixed, and is restless; becomtracts his brown, mises his hand to his head, rolls his head from eile to side, and, although heavy and stupid, manifests every sign of suffering. The temperature is high but the pulse is comparatively slow (70.86). The fits continually recur, having the child more and more simple and complose. The popils become unequal, rigidity of the joints comes and and the child dies.

In cases of congration and effusion upon the brain the claid, although heavy and stopol, is quiet and shows no distress. Countly he takes has bottle well, and this is an important sign. The fits are rarely repeated after the drownings has become marked. The pupils, although shapped, are not amount in size, and although the least may be retracted there is

no rigidity of the joints.

Tubercular meningate sometimes, although eartly, begins with a one valuing: But unless the cerebral symptoms occur in a terminal plan of neute general tuberculous, the disease afterwards runs its normal coape, which is very unlike that of cerebral congestion. It must be reasonbered. honeser, tind a primary talercular meningitis is a more under the ago of two years, while the cuses of cerebral congestion we have been considering are abreed limited to the first two years of life. The difference of age is therefore an important element in the diagnosis. Still, spart from other considerations, congestion of the limin may be usually recognised by asmarking that although drover and stupid the child is not actually more scious; that he continues to take his hottle well; that his papils are never amequal; that there is no rigidity of joints, and that loss of power, although it may occur as a consequence of violent convolutions, passes off in a few hours unless there he some cause for it more serious than more exhaustion of negrous force. The occurrence of squirt lasting more than a levhours is very suspicious of a small homorrhage. It occurred homorr, in the case sarrated in another chapter (see Cournisions), without sarrivage being discovered in the brain beyond congestion of recels and efficient of SCHULL.

Progressie.-There is always reason for great anxiety when a young child doors signs of abnormal herriness and drowsmess. The nastale must not, however, be made of attributing to centric disease natural deptness due to disturbed rest from digestive derangement. It happened to use once to be summoned some distance into the country to see a cital of a few weeks old who was said to have concestion of the brain bosons # was always falling saleep. I found that the child's howels were disordered. and that it was evidently tortured by frequent griping pains. Every few minutes it draw its legs up, bent itself backwards, and ottered a feeble ery. After some seconds its features relaxed, its eyes closed, and 3 seemed to sleep, but almost immediately afterwards at was aroused by a fresh attack of pain. This state of things had continued for forty-right boars. During all that time the chibit had been prevented from obtaining natural sleep owing to the abdominal pains which remodit almost to see as its eyes were closed. After a good does of easter-oil, which pelieved its bewels of the irritating uniter, the child enjoyed a refreshing sleep and neoke quite well.

The majority of cases of stoper following consultions recover; but we should be careful not to commit ourselves to a too hopeful progress subtes improvement begin early and go on space. As long as the child retirement to take his food will the prognosis is favourable. If he miss

his food, if the drowsiness deepen, the pupils become unequal, or squaring

occur, the child will probably dis-

When drowsiness is noticed in children as a result of impediment to the return of blood from the head, the prognosis is determined by the asture and severity of the disease which has given rise to the passive energytion.

Frontiscal—When called to a child who has been left heavy and stapish
by an attack of convulsions, and we have reason to fear an effection of fluid
into the skell cavity, our first care should be to clear out the alimentary
could by a dose of caloniel and juliques. We should afterwards keep up a
free action of the bowels by frequent doses of any smitable mime aperient.
The child should be kept perfectly quiet in a large will ventilated room
carefully shaded from a too strong light. If he be at the breast, no other
food should be allowed. If he be brought up by land, milk and burley
water should be given, and but little faranceous from if the guess are
tense and swellen, they may be lanced; but unless actual irritation arises
from this cause the operation is better avoided. If thought descrable cold
may be applied to the head. In some cases counter-irritation with mustard
positions to the chest and spine has seemed to be of service.

In possive congestion the treatment is that of the disease which has

given rise to the hypersenia.

CHAPTER X.

CEREBRAL HAMORRIAGE.

Reverus of vessels and effusion of blood into the benin is in the dill a comparatively care accident. In new-born babies, however, entravastion into the amedianal sac (meningeal honorrhage) is not uncommon if the labour has been difficult and slow. Indeed, Croweillier has stated that amongst still-born children one-third of the deaths may be attributed to this cause. Under three years of age it is care to next with my other form of intracemnal homocrange than that into the ameliacid, or the mostes of the pia matter, although Billiard found a scot in the left copus striction in an infact only three days old, and Bérnell found a similar lesson in a shill of eight months. But after the third year a true cooked homocrange is more likely to occur, and sometimes it produces much the same symptoms in are found in the adult to accompany a clot in the lamp.

Groupes, — When meninged hemorrhage occurs during birth it is in cases where the head of the fastus is locked in the brim of the pelvic and the bones of the shall are forced to overlap from the pressure benight to bear upon them. If it occur after the birth of the child it is sainly a secondary affection, and may be induced by any cause which is employed giving rise to severe and long-continued congestion of the brain. This it may be found in cases of throughouts of the crunial strongs; it may be induced by tumours of the brain pressing upon the torcular Herophia and the veins of Galon; it may be a consequence of convulsions or who pingrough, and it is said to be often found in cases of death from infanta totanus. It appears to be predisposed to by conditions which lead to debility and exchesia, such as lead teeding and acute exhausting discose.

The same agencies which induce cerebral hamorrhage in infants my cause extraorantions of blood into the shull cavity of older children. In these subjects the hemorrhage may take place into the meninges, the tentricles, or the substance of the brain. In honorrhagic purpurs the mean ges of the brain, like other parts of the body, are occusionally the sat of extravesations of blood. In many cases, especially when the effects course between the dorn mater and the skull, the hannerfuge and be attributed to a traumatic cause. Children, too, like adults, may die from that comparatively rare accelent—rupture of an ansurism on the brain. Combril ansarism occurs in early life much more frequently than the scarry forms of anemism. Out of assenty-nine cases collected by Dr. Penezzk as less than four were found in children between the ages of thirteen and Eteen years, and a boy, twelve years of age, recently died of this disease it the Victoria Park Hospital, under the care of one of my colleagues. Sill. liable as children are to cerebeal discone, hemograppe into or on the brain is not common in young subjects, so for at least as can be judged from the testlts of post-morten comminations.

Morbol Austrony.—In young subjects hemorrhage is in general equi-

lary. Rupture occurs in small vessels and the efficient of blood is gradual. In the meninges of the brain the extravasation usually takes place in the ameliantil sac; but it may be also formed between the dam unter and the heav, in the meshes of the pin under, and in the lateral ventricles. In the araclmood san the blood is either liquid, of the consistence of syrup, ter is separated into a solid and a liquid portion. On opening the eranium the dura mater is of a deep violet colour from the presence of the dark elot beneath it. On examination this clot is seen to be spread over the surface of the brain. It usually occupies the situation of the posterior lobes and the carebeilum, and may even reach as far so the vertebral canal. It is thickest in the centre unless a part of it covers the facure between the hemispheres, in which case it is issually thickest at this spot, as it here dips down towards the fornis. Towards the circumference it thins off, and is usually continued for some distance as a false membrane which resome from absorption of the colouring matter of the efficied blood. This false membrane near the clot is readily distinguishable, but it fades gradually towards the edges and is lost on the surface of the aracinosis. The clot generally adheres siightly to the parietal layer of the arachaeol, although it may be readily squarmed, and the membrane beneath it has a perfectly normal appearance. The visceral layer of the arachnoid however, is often thickened and opaque. The clot and resulting false membrane are in rare cases stratified—an appearance probably produced by successsits additions to the original extravasation. Sometimes we find more than one clot, the effusion having taken place at various points. The thockness may be from a few lines to an inch or more.

A certain amount of fluid, more or less coloured, bother the surface of the clot; and if the child live long enough the liquid may become suclosed in a species of cyst formed by more or less complete adhesion of the edges of the false membrane to the surface of the anchord covering. Sometimes the cyst is localated, and the sentents may increase in quantity by subsequent secretion. In a case reported by MM. Billiet and Barther a doubte cyst was found, each chamber containing more than half a litre of fluid. When the collection of fluid is thus considerable, it presses outwards the featuredle and the bones of the skell so as to form a real hydro-

cephalas

It is rare to find hemorrhage in the ventricles; but it may occur either in the mails of the lateral vesitrieles or into their cauties. Homogrange into the substance of the brain is also an uncommon bosica, although it may occur in infants and children of any age. It is seldom copious. Usually when it takes place it is in the course of some other form of illness, and perhaps on this account often escapes recognition during life. The blood is seen in minute points scattered about the exceleral tions, or may he found collected in little cavities in the brain-substance. These two forms are about equally common. The larger collections of blood may in size from a pea to a walkut. Around them the hum-tisms is normal, or timed with rose colour, or slightly softened. The inemarkages may be found at any part of the brain-substance, but are much less common in the rerebellum than in the cerebrum. Besides homorrhages we often find in these cases much congestion of the brain; and there may be also other lesions, such as meningitis and even tubercles of the brain, as in a case to to afterwards referred to.

Cases of aneurism of a cerebral artery in young subjects are almost insurable associated with endocarditas, and it is generally held that the arternal dilutation is the consequence of embalism. It is probable, also, that cerebral harmorrhage in the child is more often the result of meurism that is commonly supposed, for this may be easily everlocked. As Sir Withins Gull has observed, "when death takes place from changes around in assurism, as by pressure or softening, the see steelf may present such apparances that unless a minute dissection be made of it, its true minuting not be disserved." The neckanism by which the manifestal distribution is produced in doubtful. Dr. Ogle attributed it to the impaction of the otherwise delt, and supposed that this offerwords softened and involved the coult of the vessel in the process. Dr. Goodhart has suggested that in many cases the clot is given off from a valve the seat of observing who cardina, that this poissons the part where it believes and "leads to arms softening of the arterial wall by inconducing it with its own inflammary action." The explanation is not, however, of universal applicability.

Samples no. - The symptoms of memory in howeverings are unfortentials for from being obstructeristic of the lesson to which they are owing. This form of intraceural lastnorrhage, indeed, may give rise to no symptomism all. According to M. Parret, in infants reduced by long-continued hall feeling to a eacheetic state neginged Laguerbage is not unfrequently found, although during life nothing unusual in the condition of the shall had been noticed to excite a suspicion of this serious complication. Un the other hand, in new-horn bubbles extravasation of blood into the areanon! are may be accompanied by violent conventions and end in derin within a few hours. Such a case is recorded by Valleix. A well-leveloped, healthy-locking male infant received a violent bruise on the shoulder two days after torth. He seemed to be going on favourably when, on the sixth day, he was seized with strong convulsions, which were repeated with violence, and in three lengs the child was dead. On communities of the body a large clot was found in the arachneid sac; the coins of the pix not ter were swollen with blood; the substance of the benin was injected. and the superior longitudinal same was filled with a whitish, semi-inneporal, gelatinous thrombus. In this case the convulsions must not be atinteled enterely to the homorrhage. No doubt the thrombous had a great slare in the production of the symptoms, and it was apparently the came of the extravaention. Compilious are, however, a common consequence of arachnoid homorrhage and repeatedly recur-

Legendre has described a febrile form of anninged harmarks, in which the disease begins with voniting and pyrocia. Convolute unions soon come on, limited at first to the centar needes and giving rise to a slight squiet. The child suchs well, probably from these, and his lovels are in a normal state. Soon contractions are noticed of the fagers and been and general convolutions follow, both tome and clonic, during which consciousness is lost and the face becomes of a dusky red that. For a first the convolutions are comparatively infragarent, and in the intervals the state is heavy and duriny. After a low days the beariness despens into staper the intervals between the fits become shorter and shorter, and towards the end of the illness the infant is almost constantly convolved. The fear persists throughout, and death is often hastened by an intercurrent in

tlammatory complication of the lange.

The above is prescrilly accepted as representing the ordinary occase of an attack of manageal homorrhage in the soung child; but if it induces us to look for elevation of nemperature as an essential part of the allies it is certainly mislanding. Statements with regard to temperature said to days before the thermometer came into use as an aid to disionly restigation, aloud be accepted with contion. Moreover, in each of the two

illustrations appended by the author to his description of the discuse, a Apollo estarthal parametris, was found to occupy the large; and this complication would supply explain any elevation of temperature which might have been noticed during life. In cases of intractuoal homorrhage tracecomponied by an inflammatory condition of other organs the temperature, as so shown by a case narrated later, is not mised above the normal level.

The chief difficulty in assigning to this form of homorrhage the continctive symptoms arises from the tast that it is rare to find a case in which the homorrhage was not accordary to, or complicated by, some other maledy. Even in instances where no morbid condition of other organs is to be discovered it is an open question whether the convulsions which are invariably present in such cases give rise to the homorrhage or that becauserings to the convulsions. It is worthy of remark that puralysis in seldon a consequence of moninged homorrhaps. The symptoms, indeed, are very much those of managins affecting the convexity of the brain, with the important exception that in cases of hessorrhage there is no pyrexia. They also differ from them in the fact that there are no signs of bendache, and that at first the stupor is not profound. Infants with attransaction of blood into the meningus, according to the testimony of all published cases, take the bottle well for a time. This is no doubt extra to thirst rather than to my appetite for food. Still, the fact remains that while in arachneol homorrhage the child takes food with availty, in simple meningitis of the convenity of the beam he makes little attempt to such, and generally refuses the bottle altogether.

Hamorriage into the meninges or on to the surface of the brain is not. confined to infinite A little girl, agod eight years, was a patient in the Victoria Park Chest Hospital for heart disease and droppy. The heart was calarged in all directions; promystolic and spetolic normans were beard at the apen; there was much colours of the lower extremities, and the urine contained one-third of albuman. The child was kept in bod and made considerable progress for about a fortnight, when some thrombosis was noticed in the besile and internal siphera veins of the left safe. About a week afterwards she cried out one morning after breakfast with post in her head, and shortly afterwards because convalsed. Twitchings were noticed in the muscles of the lower part of the face on the left wife, involving the line, the angle of the mouth, and the left side of the neck. The face was immed to the left. There were also convenies movements of the left arm, more particularly of the forearm, wrist, and hand. There were no movements of the leg on that side. The pirl field in the course of the evening after a series of these convalsive movements. The temper-

sture was permal throughout.

On opening the superior longitudinal sinus, after death, the channel was found to content a decelourised adherent clot which reached from marry the autorior extremity to the posterior third. Opening into the same was a unin which run from the right coveloral homophere. This was also filled with a clot, but less decologies of them the first, and the surface of the brain in its neighbourhood was the sent of a circumscribed homography. The slot was bounded posteriorly by the fissure of Reduction and extended anteriorly over the posterior put of the superior frontal correlation on the right side. These correspond very nearly to the areas described by Ferrier, as connected with the movements of the lips tongue, and mouth; also that for the movements of the sen and leg. There were no convenience movements of the left leg, but this was the sent of no

much selema that the child's own coluntary power over it had been say small.

This case, for the notes of which I am indebted to Dr. Lawrence Resphry, the resident physicism, hears a very close rescaldance to Valley case before referred to, although occurring in a much obler child. It will be remarked that the temperature during the consulsive sciences was no elevated.

When the extravasation of blood takes place into the substance of the brain the first symptom as usually an attack of commissions. Altermedy the phenomena may resemble those poculiar to an apoplectic science in the adult. It is probable that this form of hismorrhaps is less uncommen than solels be indered from examinations in the deal-louse; for if the amount of blood effused be moderate, the child may recover with a now or less extensive paralysis. In printary homorrhages I believe this is not unfrequently the case. In hospital practice we not unfrequently see elddren who, as a consequence of a fall or some injury to the head, are sensel with healische and convoluções, and are then found to be puralysed in one half of the body. The by often recovers after a few weeks, but the arm may remain more or less permanently disabled with contraction of the fagers. This was the case with a little girl, six years of age, who was lately a patient in the East London Children's Hospital. In addition the child was aptinuic, and could not be personaled to speak during her stay in the hospital. Otherwise her general health seemed fairly good, and sie did not complain of boularhs. The case unfortunately could not be followed. out, as after a few weeks the child was removed by her friends; but I have little hesitation in ascribing her symptoms to a small clist in the benin.

Ohen the cerebral lagnorrhage is only one of several lesions occuping the crusisl easity. It is then difficult to assign to each its due due to

the production of the symptoms.

A little girl, aged difteen months, with ten treth, was brought to the hospital on July 13th. According to the mother's account the child although hand-fed, had walled at the age of ten months, and had always been regarded as healthy until the previous March, when she had had a full down a flight of stairs. The child was not atomical by the sociality but consist and "was ill" for a few days. She then began to less first and council to run about, always crying to be nursed. On June (thi, do had a violent convulsive seizure which began with hiceough. The spans were insited to the left one, and bated nine hours. When they count the left arm and leg were noticed to be presented, and the face was darm to the right side. The poralesis passed off in about a formight, but the child remained weakly. She began to have a discharge from the left are not the nostrile. She seemed to suffer sunch from pain in the heal often consisted; and the howels were somewhat losse. On two occasions she had goneral convulsions of an hour's duration. She took liquid food well.

Towards the end of June the child became much worse. She begun to cough; her breathing was rapid; she sighed a great deal; signed my

drowsy, and at times would scream out suddenly as if in pain.

On admission into the hospital on July 13th) the temperature wit 101°; pulse, 100; respirations, 88. The patient was freiful and several shoot increasestly until 11 r.m., when she had an attack of general contracts. At this time her temperature was 104°. On the following mericulate was found very pole; the fortunelle was depressed, the rest termed constantly to the right; the pupils were unequal and inscendible.

light, the left being the larger of the two. Both arms were convalued, and the right leg and left hand were rigid; there was no paralysis of the face. The hands, feet, and now felt celd, although the temperature in the vecture, was 102.4°. The pulse was very small, 170. The abdomen was soft and not retracted. Pressure on the skin produced little flush. On entrimation of the back dubiess was noted on both sides with abundant expetaing riles. After this the child remained insensible and died at 6 r.m.

On examination of the body much yellow lymph was found covering the right middle labe of the corebrant. There was an old clot, the size of a hen's erg, occupying the right corpus striatum and the superposent part of the right bemisphere. Scattered cuscous nodules, the size of a large peasure seen in the right hemisphere, and the choused piexus; and some gray granulations were discovered on the vertex of the brain along the course of the cessels, and a larger number at the base. The large twee the seat of entarphal pastmonia. The liver spices, and kidneys contained small yellow no lules; and the branchial and messatene glands were unlarged and encours.

In this case there can be little doubt that the convulsions and henriplegin noted on June 4th resulted from the apoptestic clot. The aftersymptoms were, no doubt, the consequence of the memorities and general inherentosis. The case is interesting as showing that a copious extramation is not necessarily fatal; for it is reasonable to suppose that had the

clot been the sole lesson present the child would not have died.

Carebral hemorrhage in the child is not, however, always accompanied by symptoms so characteristic. Violent convalsions and sadden death may be prediced by a clot in the substance of the brain; or a child may be scized with repended vomiting; may then be taken with convulsions; and afterwards full into a state of unconsciousness with dilated pupils, rapid feetle pulse, and cool skin, and the in the course of a few hours. These were the symptoms noticed in the case of a loy who died in the Victoria Park Hospital from repture of a cerebral accurism. The notes of the case were kindly formashed to me by Dr. Humphry, the resident physician

A scrofulous-looking boy, aged twelve years, was admitted into the hospital under the care of my colleague, Dr. Birkett, on March 15th. He had not scarlating four years before, followed by dropsy, and there was besides a doubtful history of risemunito fever at about the same time. For two years the patient had complained of shortness of breath, which had lately been getting more distressing. When admitted, a load mitral marmor

was detected, with considerable hypertrophy of the heart,

On March 19th the boy variated a great deal, and complained of headsche. On the morning of March 20th he seemed very sleepy, but made no
complaint. At 11.30 a.m. the resident physician was summoned to his bedsile, as the boy was said to have had a fit. The patient had vomited and
appeared to be very drowsy, but he measured questions. The papils were
equal and rather contracted; the conjunctive were sensitive, and there
was no squint or other sign of puralysis. Shortly alterwards he had several
quasi-fits in which he became flushed. His eyes rolled from sale to side,
and the conjunctive were not sensitive. He passed water in the bed.
The pupils were equal. Temperature, 97.6°; pulse, 84, and regular. After
this the comp became more and more profound, and the boy died at 4 r m.

On examination of the body the twins over both hemispheres were much congested, especially on the right side. The pia mater over the whole surfaces was suffused. The left hemisphere was larger than the right and the convolutions were flattened. At the base of the brain all the sprend along the Selvian factors on to both surfaces of the corrisilan and
downwards along the sord. Both laferal ventricles were complete filed
with a large clot, as also were the third and fourth restricles. From the
ventricles the blood seemed to have spread by the transverse fictors to the
outer portion of the brain, and not through the "iter." The course of
the harmorrhage was a small ancurism of the size of a small per, matel
on the Sylvian artery about one inch from its beginning. The coats of the
ancurism were very atheromators and british. The empires was extensive
along the top of the ancurism, and the blood had burst into the top of the
anterior harm of the left intered ventricle. Elsewhere the coats of the
sele showed no sign of disease. The mitral value was much basked, and
the percentions was universally adherent.

Judging from the variety of symptoms found as a result of cerebral homorrhage in the child we can only constants that there are none which can be considered characteristic of this fesion. Symptoms of irritation of the brain coming on sublenly, and followed after a few hours by symptoms of compression, are not peculiar to homorrhagic effusion within the shall; and yet, as a rule, we find nothing more distinctive than these. Still, the very fact of profound depression following rapidly upon symptoms of sintent arritation in a non-precise patient may give rise to suspicious of cerebral homograph, especially in children over four or five years of age.

Dispense.—On account of the indefinite elementer of the symptoms, bemorrhage into the brain or meninges in childhood is very difficult to detect. The difficulty is increased by the lesion being so often a secondary one, occurring in infants and young children who are stready suffering from other complaints. It must be confessed that in such cases infraerantial homographics is very likely to be overlooked. Even when the lamorthage is primary it is difficult to by down rules for the detection of the lesion.

If a young child, whose water has been examined and found to be leadily, he seized with repeated convolvious, in the intervals of which although drowey and stupid, his temperature is normal, and he scaling liquid feed with appetite, we may besitate between congestion of the basis with offices of third and intra-cranial hemorrhage. If, now, we notice that offer the staper has become marked the convolvious continue, and especially if any contractions and rapidity, more than merely temporary, are noticed in the hands and feet, the temperature remaining low, we are

justified in suspecting a lumnorrhage.

When hempleyin follows an attack of correlations, the puralysis is of necessarily a symptom of humorrhage, for the same pleasurem (correlations and puralysis) are occasionally seen in cases of number of the treath the latter disease, however, we can nearly obtain a history of some and purocycual bendude; there is often puralysis of ocaler associes, and cating implication of correlations are on an emission of the recovery of the presence of optic nearitis. Contractions and significant the presence of optic nearitis. Contractions and significant the fingers and toes, wrists or ankles, may seem in either use. It after recovery of consciousness the hemipleyin persist, but the child remain free from headachs, if the retime are normal and the general bealth seem fairly good, a correlatal greath may be excluded.

A diagnosis between homorrhaps into the meninges and that into the substance of the brain is probably impossible from the symptoms show although if purelysis occur this symptom is not in favour of meningual extravasation. The ego, however, is here of importance. Under the

third year becoverings rarely takes place into the cerebral tissue. In nine costs of intracranial homorrhage occurring in infants aged three years and under observed by M. Legendre, in no case was the hemorrhage other than meningeal. After that are homovrlage more commonly takes

place into the beam-substance, as it does in the whilt,

Progress. In all cases of cerebral laguiorrhags the prognosis is very persons; and it is especially so if the patient in whom the extravasation occur he the subject of distlictic discuss, or he weakened by recent neute illiers. The occurrence of paralysis is not in itself a necessarily undersurable sign. Of greater importance is the degree of herriness remaining after the convalsions have could, or the frequency of return of the specmodic morements themselves. As long as the child continues to take Equil food we may loop for improvement. If he refuse his bottle, or come to drink when the footing-rup is held to his lips, the sign is a very unfavoumble one. The condition of the pupils should be always noticed. If they are dilated and insensible to light the prognous is bad, if they are emogral in vice death may be considered certain.

Prostucat Cases of intracrusial homorrhage require much the same treatment as has been already recommended for congestion of the besin. If the child be strong an ice-lung aboutd be applied to his head, and the howels should be freely acted upon by a dose of calonicl and julys. If the heart's action be violent, and the actorism of the neck are seen to pulsate strongly, digitalis may be given to control the energy of the cardine Three drops of the tincture of digitals, or twenty of the infasiru, may be given every two or three hours to a child of twelve months of age. The putient should be with his lead valued; and if the feet are cold, a lot lettle can be placed at the bottom of the col. If the paise flug or the fontanelle become depressed, stimulants should be given in such quantities as may seem desirables

The food should consist of milk, Irealt diluted with burley unter, or of whey and burky water. It is better in these cases to feed the child with a spoon, or at any rate to give him fluid only in small quantities at a time, so so not to increase the stress upon the ressels by a rapid introduction of

large quantities of liquid into the circulation.

In the after-paralysis little can be done. Our efforts must be tostricted to ording measures for improving the general health and pro-

meting statution.

CHAPTER XL

CEREBBAL TUMOUR.

Concern, like solulis, are subject to associal formations in the brain which may give size to a variety of symptoms according to the situation of the growth. In the case of a child, however, "temour" of the brain normally means "tubercia" of the brain, for it is only in exceptional cases that any other forms of coroleal growth is to be found. Still, in our instances cancegous, glyconatous, and syphilitic modules are developed in the region, and occasionally we meet with the systicarcus calluloss or the

hedstid cest.

Mortal Assume.-Tuberely of the brain is said to be rare under the are of two years; but I think the occurrence of the disease in infinite a more common than his been supposed. It is seldem seen in the quarter without other organs being similarly affected, although in scooplisms cases at may be a solitary instance of inherentar formation in the look. The west is most frequently in the cerubollum, but it is also common in the beautypheres of the brain. Next in order of frequency, according to Andral, come the pens the medalla oblingata, the palmides of the combining and combolium, the optic thalanna, and the corpus stricture. In number there may be one or more, and in size they may be small or large. Usually the more numerous numers are of small dimensions Single tunours may be an small as a pea or an big an an egg, or con of still larger size; but they are most commonly met with about equal in volume to a filtert or small markle. The masses are almost also see rounded by a fibrous covering which separates them from the beat only statics stotrad. In correptional cases, however, i.e., where death has taken place while the turnour is still growing, the limits of the mass are not thus circumscribed, but its substance passes insansibly into the alpoint cerebral thome. When the tumour comes to extend itself, as greak of connective fisms and vessels forms at its circumference, and develops into a fineway envelope which varies in thickness according to the up of the growth.

On section the innours are yellowish while, or have a hint greened tint, and are found to consist of abovey matter. Their consistence is more or less firm, but the centre is usually softer than the circumfermor, and may be converted extendy into a creamy pulp so us to give the appearance, with the firm encologie, of a little bag of pas. Tuberraless matter found in the brain is solden seen in any other shape than that of piller caseous matter. Lebest and Bokitansky, however, agree that in stoptional cases it may begin as the gray granulation; but it selden search long in this stage and very quickly becomes classey and pillow. Aread the mass the brain-substance may be natural, or congested or more or less nothered by selema. Often the reflections of teherole spangings the pia number, and are attached to it by a fibrous staff continuous with the envelope, and filled like it with tuberculous or cheesy matter. Tuberculous meningitis is often present, and is the direct cause of death. If the mass be on the surface of the corebellum and so piaced in to press on the straight sinus or the term magna Galesi, it may be a cause of chronic hydrocophulus. It is not often that a creticeous change takes place is cheesy matter situated in or upon the brain, for the irritation set up in usually so injurious that death takes place before this transformation has had time to occur. Still, it is sometimes met with.

Cancer of the brain is rure. When it occurs it is mently secondary to a similar growth in the eye; or, as recorded by Steiner, may advance inwards from the skull. When thus secondary, it may appear in several centres. The size of the mass varies from a pea to an orange. These ex-

called cancerous growths have usually the characters of necessary

Gliematons tumours of the brain are solitary growths which increase shoely in size, so that they may be long in producing approximate effects. They often reach considerable dimensions, and occupy by preference one or other of the posterior coroland lobes. Their borders are not well defined, and their substance passes gradually into the brain-tisens around. Their consistence is usually firm, and they are rather more tascular than the serchial substance in which they are embedded.

Cysticered, the ascend stage of the firms solium, when they occur in the besin, are usually summerous. They are generally found in the gray substance or at the surface. They are especially partial to the pin meter, and are usually more or less ambedded in the gray matter of the consolutions. They vary in size from a pen upwards. Occasionally they die and become changed into a thick "mortar-like" substance containing broklets.

Hydatids, the second stage of the temia echinecoccus, neually exist, several together, enclosed in an outer suc. The most frequent situation is the centre of the white matter in one of the benispheres, and the cyst may grow to a large size. The hydatid, although more at all ages, is not proportionately less common in children than in adults. In trenty-four mass of brolatids of the brain, collected by Dr. Bastim, in which the age

was stated, three recurred in children under the age of ten years.

Scripto Tuniours of the limits, if they grew slowly, if they are situded at a distance from the base of the brain and the large gauglia, and if they merely displace the benin flaments without destroying them, may produce absolutely no symptoms at all. This fact, which has been amplied to a supposed faculty of accommodating shelf to pressure resuling as the brain, is better explained by Niemeyer to be due to the strophy of cerebral saletmes which takes place in the neighbourhood of slowly growing binsours, allowing of increase in size of the greath without interference with cerebral function. Sometimes the symptoms are so triffing as to be mershalowed by others arising from disease or disturbance of a different part of the body. Again, after being a long time latent, the greath may give rue to obstimate headache, to a slight squiat, or some other form of nuscalar speam; and for weeks or mouths this may be the only symptom to be detected. In cases where the morbid growth combin of choosy maller other symptoms may arise not the directly to the cerebral timiour. Thus the patient often dies of a tubercular meningitis, the symptons of which may quite ecoreal may special phenomena resulting from the tomour of the brain.

There are no symptoms possible to an infraerunial growth, for all are the experience of local destruction of substance, of pressure on the tasses around, and of interference with its vascular angely. A distinctive charactor is, however, given to the disease by its course, the assumes of its phenomena, and the predominance of some symptoms over others.

There are certain general symptoms which are found in most case of careful fumour. Healache is estably early to occur, and may remain for a long time the sole morbid phenomenon. Often elight at first, it becomes gradually more intense, and may assume a violent pureaysmal clarater which is infinitely distressing. Infinite show this by contracting the laws. throwing up the hand to the head, rolling the head from side to side, and occasionally breaking out into piercing cries. An older child will place Ins hard upon the site of the pain of asked to do so. He avoids the half shudders at a load noise; and often buries his face in the pillow of his led, or covers his book with the build thes. The attacks of headarks are

generally accompanied by vomiting, and often by distincts.

Scotter or later sourthdoors, fonic or clonic, may expervene. Three are sometimes complete and bilateral, and resemble attacks of epileper. Sometimes they are partial, and are confined to the face, the eyes, or one limb. The convulsions may be preceded by tremours or twitchings without loss of consciousness, and it may happen that these latter are present with. out being followed by more decaded segures. If attacks of such meter disturbance, of whatever degree, are noticed from time to time in the same part, or persist in it, the symptom is a very suspicious one. Convoluina are said to be more common when the growth is situated in the posterior lobes of the brain, and to be less frequent when the arterior lobes are affected. If the seizures are epileptiform in character, the tumour is proinbly in or near the cortical substance of the cerebrum.

The convolutions may be followed by temporary paralysis in the affected muscles, and in some cases a permanent purplysis may be observed. This more commonly affects muscles supplied by cerebral nerves than in the case in other discusses of the brain. The external rectus may be affected (sixth nerve), producing convergent squart; there may be piccia distation of pupil, and external strabismus from paralysis of the third nerve; the Israil muscles nur be purabosed; and there may be impairment of deglistition or articulation. Sometimes lumiple, in a produced. The order nerves are affected on the same side as the growth; the spinst retreson the opposite side. If, however, there he several transmis present in the beain, norves of both sides may be incolved, and we may find hearifords condition with variously distributed paralyses on both sides of the fire. Generally the puralysis is developed slowly, and is precided by pair in the muscles about to be affected. When it occurs suddenly after a copyright science, the case in often mistaken for one of corebnal hamorrhage. Cotractions often occur in the purelysed muscles, and may follow the purelyse sery impally.

There is usually loss of special sense: Desfects may occur and inperment of motor is a frequent symptom. Amourous is said to be need common when the growth occupies the anterior lobes; in which you the straight sinus is compressed and the sampe of blood obstructed from the reits of the eye. Dopoistment of vision is not, however, contined to the cases. It is often seen when the tumour is scated in the posterior beauti in the cerebellam. The disturbance of sight is then attributed to compression of the cong magna Gerbrai; and the interference with the circletion induces at the same time a copious efficient into the lateral wo-

trickes. Ophthalmoscopic examination of the eye almost always shows impretent changes which affect the retim of both eyes. We find that the desiis awallen and blurred at the margins, with tortuceity of the central vein-

If the child less long enough the optic serve may strophy.

Unless shronic meningitis become developed, or there are numerous immours in the corelard substance of both hemispheres, intelligence is but little affected. Still the child generally shows some change in character. He is fretful and perverse, or nacross in temper, and gives much trouble to the nursery and school-room.

In slowly growing tumours the development of the symptoms is very gradiest. These are the cases which are comparatively easy to recognise. We find a history of benchacks, of tremors, or convulsive attacks, followed at a longer or sheeter interval by paralysis more or has complete, involving often special senses, and implicating the cerebral nerves as well as those of the spine.

A good illustration of the symptoms is seen in the following case :

A little box, speel five years and a built, who had and a slight convergent squart sense the age of two years, but had atherwise enjoyed perfect bealth, began to suffer in the month of June from peralaw symptoms of illness. A short time previously he had had a sewer full upon his head. The accident shoot him for a time, but its effects appeared to pass off completely. Early in June, however, the boy began to complete of besidely, which came on its sewere paracysms, so that he cried out with the pain. Almost at the mone time his limbs began to get weak. His arms trembled when he took merthing up in his hands, and he tottered as he unified. Very seen afterwards his sight began to fink, and he ment to wonit, especially at might; but his other senses accord perfect, and his intelligence was unsupported. After a time the according the headache diminished, but the other symptoms were intensified, so that by November, when he was admitted into the East Louden Children's Hospital, be was almost blind and had quite lost the power of walking:

On almission (November 18th) the numbers were well nourshed and seemed dam, but my voluntary movement exerted a kind of spasin, during which both arms were drawn up, seemed to get rigid, and were agitated by a peculiar transling which lasted for one or two minutes. The lags also appeared very weak. When placed upon his feet he could not starred without support, and when he tried to do so a transer was noticed in the legs like that which affected the arms. There was no purelysis of the face, and the targue was pretruded in the middle line. He lind only partial control over his sphineters, for when he felt the electe to concuste the bowds or the bladder, he number passed his water or nections in the hell before there was time for any one to come to his assistance. He was quite blink and an aphthalmoscopic examination showed the presence of optimizantia. His other senses were perfect, and his intelligence was quite equal to that of other children of his age. His temperature at 9 a n. was

For some days after admission the boy continued in much the same state. The temperature remained between 100° and 101°, rather higher at night than in the morning. The transcen persisted, and the weakness became more and more marked. In about on days, however, some rigidity of the left arm was noted. The elbow became slightly stiff and he kept his left hand tightly elenched over the inverted thumb. He used only the right hand voluntarily, although if made to hold anything in the left he

couli do so.

192 ; pulse, 138.

On November 28th central over the sphineters was quite lost, and he passed his water in the bed. The bowels were usually costive. There was

rigidity and tremer of both arms, the head was retracted and the back was kept rigidly extended. Still, intelligence remained uninquired. Some times the boy answered questions in a sleepy tone, but he perfectly under stood all that was said to him. He made so complaints. Temperature at 9 a.m., 104.6°; pulse, 144. At 6 p.m., temperature, 194.4°, pulse, 148.

On Nevember 20th he became very drovey and would answer to area. tions. Both arms were rigid and flexed, with the thumbs twisted it wark. The legs also had become stiff and the toes extended. The back was need with inclination to opiothotomus. He could secullor, but apparently with difficulty. The respiration was jerking, and appeared to be chiefe disparagnetic. The stidenous was rather retracted. The eveloils twitched The child was alternately flushed and pole, with profuse perspiration. Be had several convoluine attacks during which the left corner of his month was drawn up. Temperature at 2 AM, 166". The boy had no more fu after 2 mm, but lay unconscious with his eyes fixed and furned to the right. There was oscillation of the cysbulls, and the people were dilated and immersable. He winked when the right-eye was foucked, but the left conjunctive was invensible. The joints were rigid and flexed. The leftwas retracted. The pulse was excessively rapid and very irregular is face and rhythm. Respiration 26, with occasional sleep sighs. The shild died the same night in convulsions. The temperature shortly before fouth was 108.8%

On examination of the body the brain weighed fifty sunces. The convolutions were futtened, especially over the right hemisphore. On remoning a thin layer of brain-wallstance at the posterior part of this brainglass a large cavity was found of between two and three incloss in diameter. This was empty and was lined by a species of false asembrane. The braining stance composing its roof seemed rather firmer thru natural and was from conserved to one fourth of on such in thickness. The floor of the easily was fremed by a firm bloubted tumour as large as a good-sized orange. The rescited to the base of the skull, where it was firmly attached to its dyn ruster. It lay external to the pour, occupying the posterior part of the middle lobe and the adjacent part of the posterior lobe. Its homelesses were not distinctly defined, for it possed insensibly into the cerebral sixstrace around. On section the mass showed a uniform surface of a rellouish-white colour. It was generally very firm to the touch, but spots were found here and there where the enfolmer was softer, as if from fatty is generation. Some of these softened spots had become hollowed out into cavities of about the size of a marble, with irregular walls. On microscopcal constitution the baneur was found to conest of small round calls, who many spin-lie-shaped cells and a fibrous matrix. There were also may be globules. The lateral ventricles contained about right conces of find The crurs corden were selbened, flattened, and rather twisted. The onpora quadrigetoina also softened. Optic nervos small and soft. There was to appearance of recent meningitis,

This case illustrates fairly well the course of the disease. The some perceivers of bendache with which the illness begun, the veniting is affection of sight, the gradually increasing paralysis, and the massals on tractions and spasses which succeeded, together with the channe progress of the case, all pointed to compression of the corebral substance. It is probable that the efficient into the rentricles was a late symptom, only a curring when the retraction of the land and dorsal rigidity become market. The accumulation of fluid compressed the corebral substance, and was a case of the drownings and stoper which marked the last Loure of the

boy's illness. The complete charmens of mind which continued until a
late period in the course of the discuss is worthy of note in the case of so
large a growth. A curious point in the case is the continuous elevation of
temperature; for pyrexia is not a usual symptom in gliomatous tumours of
the brain until quite the class of the illness, unless the growth be complicated with meningitis, and in this case no recent signs of inflammation
could be discovered. On account of this pyrexia the tumour was thought to
be a tubercular one, although no evidence of tubercle could be obtained
during life by commination of the other organs of the body.

In the case of children it is exceptional to find my other variety of trascur than the tubercular form. This, in the unjurity of cases, becomes some or later complicated with tubercular meningitis, the symptoms of which will then mix with and obscure the more special phenomena composed with the coreland growth. Anomalous cases of interpular meningitis are often, as Dr. Hennis Green pointed out in his admirable paper,

instances of this combination.

A little girl, twelve mentine old, was noticed towards the beginning of March to squint outwards with the left eye, and shortly afterwards the cyclid of that safe began to droop. Much shout the same time she suffired from sickness, and was rystless and agitated, often screaming out as if in pain. The face used to flush, often on one sale only. She took her bottle well. The bowels were confined. At the beginning of April the restlessness from which she had suffered increased, and she cried greatly, rolling har bend from side to side on the pillow. She then had a fit as which both arms and legs were rigid and convaled; her head was restracted and her back around. After this sie sid not completely recover consciousness, and, either from dishness of intelligence or from impured vision, caused to recognise har mother. She still, however, took her bottle

When seen, on April 23d, the child by in her cot apparently unconscious. The head was retracted and the back rigid; the arms were stiff and semiflened, with the thumbs inverted; the big toes on each side were rigid and extended; but while the left lower limb by stiff and straight the right was slightly flexed, and the leg from the knee downwards was in constant movement, alternately flexed and extended. There was please of the left eye, but no squint. The pupils were unequal and insensible to light, the left the more dilated. The breathing was irregular, with sighs and panels. Temperature at 6 s.m., 59°. The child book her bettle well, but by as if unconscious, although the pupils contracted when the conjunctive were touched. After this the rigidity continued with occasional remissions, and an external squint became again developed in the left eye.

The temporature varied between 99" and 100.5".

well when the test was put into her mouth.

At the beginning of May the patient began to cough, and a premucate constitution was discovered in the right lung. After this she became rapidly wome; the come became deeper; the temperature rose to 1031;

and she died on May 11th.

On examination of the body there was found a consolidation breaking down in the right lung with many gray granulations. The convolutions of the brein were flattened and congested. Its substance was excessively soft, so that the brain did not preserve its shape when removed. The lateral ventricles contained eight owners of clear fluid. Attached to the under surface of the left crus cerebri was a restricted tumour of the size of a valued, feeling soft to the teach like a bag of pass. It was invegular on the surface, and was attached to the crus by a stendor stalk of soft, yellow showsy matter, and covered with pin mater. No gray granulations could be detected about the membranes, but the dura mater was reddened and thickened.

In this case the occurrence of signs of puralpsis of the left third need (phois and external stratesmus), arrecuponised by healache and counties pointed to localised pressure, such as that of a growth; and as this nerse and no other was affected at the first, the position of the greath in te mon the left crus cerebri (which is powered by the neuk-motor terre) could be positively indicated. The other symptoms-convulueus, regulity, and staper-which followed after an interval are such as are common in cases of cerebral tubercle, and almost incurably attend the close of the illness. In fact, such symptoms, proceded during several months by headache, romiting, and purnipals of a cerebral nerve on one side, are upcharacteristic of tubercle of the brain. The discuss might, indeed he often divided into two stages—an early chronic stage, in which healts be vomiting, optic neuritis, fremore and convanies movements and preculess marked mucular mediums succeed one another inequirity and at carious intervals of time, and into an acute second stage in which repvaluous, paralysis, rigidity of limbs, retraction of head, and staper using in the cul of the illness. We must not, however, always expect to meet with a division of the disease into two well-defined stages. Sometimes the earlier course of the melady is accompanied by few symptons, and these, on account of the trades age of the child and the character of the symptoms themselves, may have fittle insportance attacked to them-

Thus a little girl aged six menths, had venited more or less sizes birth, and was said to mean frequently and "feet" as if in pain. She had wasted considerably but had never had convulsions. The family history

was a healthy one.

In so young a child consiting, pain, and restlessness, condined with loss of flesh, are familiar symptoms, and do not point in any way to intracratical disease. But on examining the buby carefully it was noticed that when the child cried the arouth was drawn up to the left side, and that the left synbrow contracted better than the right. When the face was it rest the right eye was more open than the left, and the meal line shiring the angle of the arouth was less deep on the right side of the face. The

pupils very equal and there was no squint.

In a few days other symptoms began to be observed. The head because retracted, there were tremalous movements in the right arm, the skill seemed heavy and attaped and often appeared to be splite unconscion. Bigility of the limbs then seems on, the dominious deepened into constant the cloth died. After death patches of morningitis were found at the loss of the brain. A small cheesy mass, the size of a cherry-store, on imbodical in the substance of the pons—the left posterior inff—and a second, probanculated, growth of the size of a murble was attacked to the appear part of the medalla objects and lay undermeath the right error correte. There was a considerable amount of fluid in the restricte, and a terms of caseoms glands in various stages of softening by about the note of the larges.

Sometimes the elisease begins with extensive puralysis. This was the case with a little girl, aged four years, in when the first symptoms extent were left beniplegic and vomiting four or five months believe her deals. In other cases the onset of the illness may be indirated by a assemble waster or a convulsive attack. In the assignity of imaginess, however, sent

hardache presedes the other symptoms.

On account of the frequency with which takerels occupies the cerebellum in children it is important to be aware of the phenomena which usually accompany a growth situated in this region of the brain. The characteristic group of ayuntous consists of romating, occiping headarbs, amanosis,

and a staggering gait.

The voniting is especially obstitute. It is a frequent accompaniment of all cerebral bimours, but when combined with occipital join is very suggestine of a cerebellar growth. The headache is the consequence of pressure upon and stretching of the teaterism. It affects the occupat especially, and may reliate to the back of the neek. If, as sometimes happens, it is accompanied by rigidity of the muscles of the nucles, we find a curious resemblance to cervical caries which may be a source of perplexity. Amonrosis from optic neuritis is a common symptom of this as well as of all other. forms of intracratical temours, but growths in the corchellans are especially apt to press upon the versus channels in the neighbourhood and suposis the escape of blood from the retina. Staggering goat is the most charac-teristic symptom of core bellar tumour, and when combined with the preceding is sufficient to establish a diagnosis. Dr. Bastian compares the walk of such patients to that of one who pages the deck in a rough sea. In the case of a child it knows as if the patient were only now learning to walk, and if combined as it often is, with a certain stiff way of carrying the head. the effect in the elder elabiren is very curious. After a time the weakness extends to the limbs, which then become unable to support the trunk. Tonic contractions, too, may affect the muscles of the back and limbs us well as those of the nucles, and are sometimes very severe. Tonic rigidity is such more common than clonic consultions when the tumour affects this region of the Israin. Dr. Stephen Mackenzie has it down as a general rule that "tonic contraction is a product of cerebellar, clonic of cerebral discase." These contractions, like the puresis, affect the muscles of the trank before those of the limbs.

The pois and modulla obtongate are also frequently risited by tuberculous formations. In the former advention the growth may produce neuralgia, asserthesia, or paralysis of the fifth nerve, deficulty of deglatation, and disturbance of the function of the bladder. If the proveth occupy the anterior lateral half, the third and fourth nerves may be paralysed. If it he is the posterior interal half, there may be paralysis of the fifth and facial nerves, and in either case there may be becausely in of the opposite half of

the body.

In the modulla oblougate the growth may produce wide-spread anischief. Extensive paralyses is common; there may be difficulty of deglatition and articulation and incontinence or retention of urine from paralysis

of the bladder. Consulcious are common in these cases.

Tuberculous furnessure, when they occur in infeats, are almost invariably a part of a general formation of tubercle in the body. They are very apt to be complicated with enterthal presuments excited by the presence of the gray granulation in the lungs, and in a large proportion of these cases, as has been said, the illness closes with all the signs of the third stage of tubercular meningitis. In older cladition the formation of tubercle may not be general. Still, we often find evidence of scrotislous consolidation of lung, or cassons broughtal glands, and in such cases the corebral mass might, perimps, he more strictly described as scrotislous classey matter than true tubercle. In exceptional cases no other sign of discuss is to be found in any part of the body.

Diagnosis.-The existence of a tumour of the brain can only be ascer-

tained by careful attention to the course of the illness and the character. istic grouping of symptoms to which it gives rise. If the conditiation of bendische, vomiting, and double optic neuritie be discovered it is higher probable that a cerebral growth is present; but in infants, although the existence of hemische and vocating is easy to ascertain, an ophtheless scopic examination of the eyes is often a far from easy matter, and eng the question of imparment of sight may be a difficult one to decide. It is probable that many instances of supposed dubress of mond at this party age are really instances not of imbecility, but of blindness. The debt censes to recognose familiar faces because he has ceased to see them. In such cases the test of a bright light passed before the eyes is a very rule able one; for if the eyes fellow the light the infinit is evidently not an conscious, and the return is usually still expedie of appreciating a land. nous jet, although its sensitiveness to ordinary objects is impaired. If then, in an infinit who is subject to hendarbe and remaining, we can accertain in addition that the sight has failed, we have gone for to establish the ends once of timour. If now a local paralysis arise, or tremoes or convoluing sporms are noted in special muscles, we may feel satisfied that our dige mests is a correct one.

If a young child is seen first towards the close of the discuss when the symptoms have become complicated with those of baseler mempits, we must imprice carefully us to the previous course of the illness and the progression of the symptoms. If we find a listory of chronic discuss is which hendsche, sickness and local paralysis, such as equinting, prose, or distortion of the face, have occurred some months previously; if any loss of power observed has been persistent; and especially if we can discoup that the child is the subject of optic neutrins, or that his legit has been failing, we may give a positive equinous that a turnour is present in the brain. Even the anomalous course of a tubercular memiggies is suspicious of a coreloral growth, and the sublease (convulsions, shaper, spending mental papels, paralyses, or rigidity of joints), preceded by signs of chronic acresina disturbance, are very suggestive of tubercle of the brain.

In older children the combination of healachs, vomiting, and optic neurities is very significant if Bright's disease can be cocluded. Seems healache alone is of no salare, for negroine is a not uncommon complicit in young persons. The discuss does not, however, always begin with prin in the head. When this symptom is absent, treasers or neuralar spans occurring repeatedly in the same limb or the same region of the body as suspicious. If after a time they become more severs and general, unlars complicated with other signs of nervous disturbance, such as puripass, especially of a carebral nerve, and impairment of eight, the disease is in

all probability turnous of the brain.

The actual position of the new formation can added be more than suspected. In the case of a corchellar growth, the symptoms to which this gives rise have been already described. When the turnous accupant he base of the brain, paralysis of actus special corcheal across may remain sent of pressure. In other parts of the brain the symptoms are so often contradictory, and are so limble to be altered and excited by the turbing courses, that the situation of the turnous can acidem be prelisted with anything approaching to certainty.

If apileptiform attacks form part of the symptoms, these are distinguished from genuine epilepsy by remarking that between the attacks the patient is not well, but still continues to exhibit signs of cerebral instates.

With regard to the nature of the growth: A tumour of the leain is in childhood so generally tubercular that we may conclude it to be so unless there he signs to make as suspect the contrary. If, however, the child be well nourished and of sturdy build, if there he no history of philissis in the facility, and if the other organs appear to be healthy, we should heat-take to chao the growth as a tubercular one. Children with tubercies of the leain are not necessarily wasted, nor have they always a tubercular or phthissed history; but they are usually pale and fablue, and generally show in their physical conformation signs of diathetic influence. No argument can be founded upon the age of the child, for although the disease is said to be rare under the age of two years, I cannot agree with this statement. Indeed, in the preceding pages I have referred to two cases—one a little girl of takine sentials and mother aged six months, both patients of my own in the East Leaden Children's Hospital on each of whom tubercular masses were found after death connected with the brain.

Proposes, The disease is so fatal a one that when we are satisfied of the existence of a tumour of the brain, we can have little expectation of the child's recovery. In very more cases shrinking and calculation of a tuberculous tumour have been known to occur; but if the growth has produced symptoms of pressure and irritation. Ettle hope can be enternamed of a favourable ending to the illness. Even in cases where the symptoms although distinct, are of a mild character, we must not allow conselves to anticipate necessarily a lengthened course to the disease. For however chronic may have been the earlier symptoms, the disease may at

any time take on a more acute course and run rapidly to a close.

Trinivical.—In the treatment of those cases we must aftend to the constitutional condition of the child and correct any derangement which may be present to interfers with the nativitive processes. We must remedy my digestive disturbance and regulate the bowels. By improving the general bookh of the patient we may perhaps help to arrest the extension of the mass, and may possibly promote the calcification of the timour. The child should live, if possible, in a dry bracing air; should be wurnly elothed judiciously fed, properly exercised, and be treated generally secoming to the rules had down for the management of the scrothous disthesis. Coll-liver oil and collide of iron are useful aids to this treatment. If any history of syphilis can be obtained, necessial treatment must be adopted without loss of time, and a long course of perchloride of mercury should be entered upon. Distressing symptoms must be treated as they arise. Venniting can be often allayed by keeping the child perfectly quiet is a recombent position, and by applying an ice-lug to the best. Cold applications will also relieve the headache when this becomes severe, and a good sperient of calonici and julip is useful. If necessary, morphia can be given with the same object.

CHAPTER XIL.

CHEOXIC HYDROCEPHALUS.

Hencerrunars is a name given to serous effusions into the cavity of the shall, wherever situated. The effusion may be sente or chronic. Arms by drocephales is generally the consequence of tabercular inflamention of the messages of the brain, and the name is practically synonymens with tubercular maningitis—a disease which is discussed in a separate chapter. It is not, however, very tracommon in cases of death from severe and protested convulsions, occurring without discoverable organic lesion of the nervous centres, to find collections of secosity in the corolleal vertrades and at the base of the brain. This offusion is accompanied by torposense of the veins of the pin mater—itself probably a consequence of the certainies assures—and may be looked upon as a result of the venue coagustion. This may be considered an instance of the tent-tobercular form of soute hydrocephalos. Such a case is narrated in the chapter on "Corollations."

Chronic hydrocephalus is called either internal or external according to the situation of the find. In the internal form the find is contained in the carebral control is the external variety it collects in the assessed coulty. The disease may be congenital, or may be developed at some portion after birth. Hence there are two chief divisions of chronic hydrocephalus into the congenital and nequired variety. The congenital tem is usually an internal hydrocephalus, for the fluid is for the most part in the centroles. In the nequired variety it may be either internal of ex-

terral, or the fluid may collect in both situations.

Chamban—It is difficult to say what may be the causes of congraint brakrocopiudes, although those are probably more than merely temposay agencies; for a woman who has core given birth to a hydrocephalic taken may do so again in future pregnancies. The tendency appears to be often bereditary, and it has been attributed with a doubtful amount of periodilly to drankenness and other coretitational vices on the part of the paralle According to Dr. B. Bennett, of Frankfort, the children of workers is lead who have themselves suffered from chronic brad-poisoning are very up to develope chronic hydrocophalus. Sometimes it is associated with malker mation of the term, for if there is congenital atrophy of any part of the organ fluid is thrown out to fill up the resulting space. This has been called "hydrocophalus a vacuo." Eakitmesty attributes the large mipoly of cases of the congenital form of the mainly to inflammation of the startmost lining of the ventricles occurring during ficial life or attacking the infant shortly after birth.

Acquired hydrocephales usually occurs before the end of the third year. It may be induced by any cause which interferes with the order careflation, such as tuneous pressing upon the vene-Galeni or straight same, and so impeding the escape of blood from the ventricles. Secon pressure upon the wins of the neck by enlarged glands may produce the same result. So also the intracranial affusion may be a part of general

dropsy dependent upon disease of the heart.

Another group of causes are those which modify the quality of the blood. Thus if may occur as a consequence of anomia, rickets, and other diseases which are accompanied by impoverishment of the blood, and as a sequel of exhausting acute illness. In Bright's discuse hydrocephalus may be a part of the general dropsy malnoed by the state of the kidney. The fluid in acquired hydrocepholos is usually in the ventrieles. In the rure cases where it is found external to the brain it is sometimes a consequence of meningeal harmorrhags. In the chapter on this subject it was stated that an aruchnoid clot becomes after a time, if the child survive, converted into a cost by the adhesion of the edges of the layer of fibrine-left after absorption of the colouring matter of the blood -to the serous membrane. This false membrane, according to Legendre. Billiet, and others, is formed, as above described, directly out of the bloodclot. Virchow, on the contrary, is of opinion that it results from infunmation of the internal surface of the dam mater, and that the expand lymph arising from this process becomes vascularised and forms a portaloscrous membrane which is the wall of the cost.

The cost may be simple or localisted, and its contents consist of reddish scrum with small clots and flocalish matters. Often the cost is double, each half corresponding to one of the homispheres of the bosin. Its walls become thin and transporent, and have a sergus appearance. Usually arborescent vessels may be seen to rainfy on the surface. The find contents become increased in quantity after a time, and may vary

from a few appointails to half a pint or more.

Mortid Austressy.—When the hydrocyphales is congenital and the fluid norzimulates in the ventricles of the brain, it tends to gress outwards the walls of those chambers. As a consequence the brian-substance is thinned: the convolutions are flattened, and, as the pressure is equal in all directions, the corpora stream and optic thalami are flattened, separated, and present aside; the septom luridate is softened, stretched, and often torn; the ventracks communicate freely through the dilated foremen of Menro. sud the corpora quadrigenima, the cerebellum, and the yous are flattened and compressed. The membrane living the ventricles is often found thickened and softened, and may be roughened or even distinctly gramalar. In some cases the forumen of Majendie is closed. If the effusion is large the walls of the skull also feel the effects of pressure. The head becomes distended; the frontal bone is pushed forwards; the roofs of the teltis are depressed so as to flatten the sockets of the evelodis, and the securital hone and the squamous portion of the temporal hone are made almost horizontal. The satures are widened and the enlarged fontanelles communicate by the sagitful sature. The shape of the head is often not quite symmetrical neither is it globular. The curve is much greater at the sides, and the skull is rather flattened at the vertex. Ossification in the crunial bones is delayed, and is said to be often aided by the conjunction of small islets of bone formed in the membraneus interspaces. At a later stage the honer become very thick and the skull is remarkably spherical in shape.

If no great quantity of fluid is present the size of the head is not increased but this is comparatively seldom the case; usually the shull is distended as described. The fluid is clear or slightly turbid, and varies in quantity from a few cames to several pounds. It is of higher specific gravity than the cerebro spinal fluid; is alkaline in reaction, and contains a very feeble proportion of albumen, besides elderade of sadams and uses

Various sinormalities of the cerebrum may be present from around of development, and sometimes traces of old discuss can be discovered, such as patches of accross resulting from past homograps or inflamation. The cerebral substance generally may be of normal consistence, or ensure, or orderations. Congenital hydroceptaton is often combined with other arrests of development, such as careful multiomations, spins high laws lip, etc.

In acquired hydrocephalus the changes above described step short of the exfreme degree often reached when the disease is congenital. The ventricles are still allated, but to a less extent. They contain several concess of fluid (six, eight, ten, or twelve), usually limped and clear. The ependyma of the contricles is thickened and often detted over with fine modules, especially upon the optic thalami, the farmix and the stric corner. The choroid pleans is congented, and the brain-substance may be denser or tougher than natural.

If the fluid is in the anadmold space it is spread more or less over the surface of the brain. The brain is often addinators, and its consistence is reduced. In extreme cases it may be converted into a white pulp thydrovepholic arthrogal.

Symptonic.—Many cases of congenital hydrocephalus which reach the full period of gestation die during delivery or shortly afterwards. Others

full period of gestation die during slekvery or shortly afterwards. Others survive for a variable period, but they die in the majority of cases before the end of the second year. In rarer instances the patient may live for five or ten years, or longer, and it is mid may even such extreme old aga.

At both the size of the head is not always remarkable. The appearand of the new-born infant may be natural, and no cramis enlargement may be observed until after the lapse of some weeks. Most case of lardrocephalus present both physical and mental peculiarities. The land of the child becomes very large, but his general development is strikingly backward. The increase in size of the skull is gradual and proposes. and in some cases the volume of the Lond becomes entermore. The preshar slape of the skull and the strange contrast between the directors of the common and the little pinehod and pointed face beneath it is my striking and characteristic. In a well-marked case the large globalst Load, greatly expanded at the sides and flattened at the crown, condition with the small face, if represented merely in outline upon paper, weall give the impression of a large oriental turban placed upon the head of a shild of ordinary size. The skin ever the empirion is thin and some stretched; the coins are full; the hair is scattered and meages. On placing the local upon the head the large fontanelles, the widely opered sature, and the thin, yielding bones convey almost the impression of a term but of fluid. Often fluctration can be detected, and the soft parts may hive a slight palention, rhythmical with the breathing, falling in during inque ration and dilating again as the breath is expired. The face is this, the checks are often hollow, and the thin is small and pointed. The sysballs are forced forwards by the flattening of the roofs of their sorkets, and al the same time the cyclerows and cyclids are drawn upwards by the tension of the skin. Consequently the eyes look prominent. They appear the to be directed downwards, for there is a rim of whote above the corns from an overing of the sclerotic, while the lower half of the pupil is over ered by the lower cyclid. This large head is necessarily a kersy can at that the child has a shiftenly in supporting it. As the general mission

is imperfect, and the nonscalar development of the patient far below a normal standard, the difficulty is often great. The child may endeavour to support the head with his hand, but often he has to abandon the attempt to keep himself upright, and is forced to rest his head on a pillow or on his mother's lap. The weight of the head is one reason why these children are slow in learning to walk. Another cause is the imperfect state of natrition of the body generally. Although the child as a rule takes food greedily and appears to digest it, he does not thrive. His head gets bigger and higger, but the nauscles of the trunk and limbs remain feeble, fiable, and then, and seem to derive no benefit from his copious meals.

The intelligence of hydrocophalic patients cares greatly in different cases. Sometimes it appears to be unaffected, and mental development continues in mental progression. As a rule, however, the child is backward. He is slow to take notice, apathetic, and dull at m age when other infants can be easily arrows. The time for walking arrives, but he makes no effect to "feed his feet," and if held upon the ground allows his line to double up helplessly underneath his body. When at last he learns to with his guit is tottering and uncertain. This backwardness in become tion appears to be partially due in many cases to want of intelligence, but the general innecular weakness and the weight of the head contribute, no

doubt, greatly to the defencery.

It is very difficult to ascertain the degree of keetmess of the senses in infants. Hydrocophalic babies are often thought to be deaf, but this is probably doe in many cases to want of attention. The sight is often impaired, and—as in many other cerebral discusses of infants—the child may not take notice of faces and objects because he sees them indistinctly. Dr. Clifford Allbutt Isdaeces is thermin pupille to be the enricest change, but stress that soon the disks and retime become wholly disorgained and the optic nerve is strephied from pressure. The optical transcope shows the disks strophied, their outlines blurred or last, the vessels distorted or closel, and the retime maculated with patches and streaks of a brownish or wittish colour from old hamorriages, evaluations, and fatty degenerations. Nystagmus is a scenarion symptom in these cases, and there is often a convergent squint.

Nerrous symptoms are solion about. The patient may be distressed by attacks of laryngismus stridulus, and Dr. West has observed spasmodic dyspace. Convalidous are not rure, and sometimes recur at short intervals. So also partial paralyses, contractions, and unformatic inevenuests may be features of the disease. There may be also diminished sensibility of the skin, and occasionally the appears condition—hyperauthesis—has been noticed. These children appear to suffer from frequent colling of the local from side to side as the infant lies in his cot are singest avariably symptoms of uncosiness within the shull, and these are solion about in hydro-

cephalic cases. Sometimes the head is retracted.

As an example of an ordinary case of chronic hydrocephales I may instance a little girl, aged two years and a half, who was admitted under my ture into the East London Children's Hospital. The child was of small size except her head, and weighted eighteen pounds six ounces. The head had been noticed to be hig from the age of three months, and had been constantly growing larger. The patient had been subject to convolutions ever since birth. Size could not stand or support her head. The skall at the level of the bosses of the temporal boxes measured twenty-two inches in carcumfurner. The fortunellies were very large and tense, and

the autores were undely open. There was slight retraction of the heat with some rigidity of the muscles at the back of the neck. The winn and albors of both upper extremation were kept constantly flored, and the thumbs were invested. There were no actual convulsions, but the child often twistled all over. She was very dell and stupid, but could be made to look round by calling to her. She was not blind; but there was uppergraps, and equint was often noticed. Her temperature was normal. The densition of the disease varies. Many patients dis during the first

The depation of the discuss varies. Many patients dis during the finity year of life, and comparatisely few survive to the second. Still death does not always take place so early. Sometimes a sudden arrest occurs in the discusse. The bend then censes to enlarge, ossification goes on slowly, and general nutrition improves. In these cases it is often long before long amon is completed in the skull. In the case of Cardinal, recorded by Dr. Bright, who lived with an anomarus skull to the age of thirty years, ossification was not completed until two years before the putient died.

In acquired hydrocephalus the symptons are much the same as those described in the congenital form, so long as the effusion occurs below constitution of the skull is completed. If, however, it takes place after the fentancile is closed, the symptons are observe, for there are no subspinal signs of distration. The child generally becomes dull and leavy. There is headache, vertige, and effect an apparent difficulty in supporting the head, so that the patient lies about and seems to dislate assument. If made to walk, he telters and steps contiously. Twitching or corollars movements may some on, the pupils get sloggish and dilated, and the pulse slow. Then the super despens into cours and the child dies.

In rare cases the symptoms may be relieved by spontaneous assention of the fluid. Mr. L. W. Sodgwick has recorded such a case. A little boy, two years of age, two of whose brothers had died of the dimuse, and who had always himself had a large head, began to be listless and dall. He eften complained of headarks and writted to lie down. He sirpt leadly at night and often woke up with a scream. After a time his lead sem noticed to be growing larger; the fortunelle because very with; the pupils were diluted and sluggish, and there was some membhidy to external impressions. The respirations, too, became slower and the bouting was oppressed. While in this state, the case opporting every day to be more hopeless, a sudden change was noticed for the better. The patient bevans brighter; his drowsiness cleared off; his pupils began again to respoul to light; and he ceased to complain of his head. This improvement coincided with a copious flow of watery fluid from the now; and after a large quantity of find had thus escaped all the unfavourable symptoms disappeared. Twelve neaths afterwards they returned, and increased to a degree that seemed to render the child's recovery out of the question; but again they were relieved in a percisely similar manner. Acuse of the some kind is recorded by Mr. Barron in which a large quantity of water fluid mixed with blood was discharged from the nose and morth. In the instance the patient died, and on commutes of the skull, a narrow pasage was found conducting from the cramium to the nose through the ethmoid bone.

Although the disease may become agreeded, and in children who suring the accumulation of fluid always becomes stationary after a time, the usual termination is in death. Such children, with their weakly fraces and feeling resisting power, full easy victims to any intercurrent disease; and, as arak, succumb to an attack of bronchitis, pneamonia, or severy intestinal estants oven if they do not die from actual interference with corchard function

Disgusses. - Mere enlargement of the head it no proof in itself of the existence of hydrocephales unless other symptoms of finid are present. In rickets the load is often large, and sometimes this increase in size is due to actual hypertrophy of the besin. In applishe it may be also large from extreme thickening of the emmil bones. In both of these cases, however, a certain excess of fluid may be efficied, although the quantity may be insufficient to produce any ill effects from pressure. Still unless actual intra-cranial droppy be present, we never see the peculiar globular shape of the skull which is met with in chronic hydrocyphulus. The characteristic Seatures of this condition have already been sufficiently deserribush.

In cases of acquired hydrocephulus, when the collection of fluid takes place after cleaure of the fontunelle, diagnosis is very difficult. The condition is usually dependent upon a tumous of the beain compressing the come of Galen. It may be suspected when symptoms of gradually increasing pressure upon the brain are noticed, and absence of the more special phenomena peculiar to the inflammatory forms of mercual discuse throws ne back upon this as the most likely cause of the symptoms. The sout of the fluid effusion is often difficult to ascertain with any precision, but it must be remembered that internal or ventricular hydrocephalus is more common than the external variety. Mr. Present Bouitt states that the flattering of the orbital plates, which forces forwards the eyeballs, occurs only in the internal form. If, then, in movement the evolulle are generalment, and we see the lower last of the purel covered by the lower sychil, while a rim of white is seen above the cornea, we may conclude that the drops is ventricular.

Proposis.—So few children, comparatively, survice the second year that the prognous in intracumial dropsy is always very serious. Conguintal cases mostly die, and in no instance can we give a favourable opinion unless evalences of arrest of the disease have become unmistakable. Cartable in no case can we venture to hope for so favourable a termination as a spontaneous evacuation of the fluid. Even if the disease become arrested, the patient remains in most cases with a large unsightly head stell a more or less blunted intelligence. Convulsions, twitebings, retraction of the head, and other signs of cerebral irritation are unfavourable symptoms. So, also, are continued wasting and looseness of the bowds. If the patient

is weak, any intercurrent discuse generally proves fatal.

Printwest. - Clases of chronic hydrocephalus are the despair of the physician. He can do little more than attend to the general health of the chibit, regulate his howels, and exercise a judicious supervision over his dietary. As regards arresting the disease, or causing absorption of fluid already accumulated irestaurat appears to be of slight value. I have thought that the persevering employment of perchloride of mercury has been of service, for I have found arrest of the disease to occur in one or two instances while the drug was being given, but the same treatment has failed in so meny other cases that the more favourable result was in all probability a mere coincidence. I have never some special benefit derived from dispeties or tonics, blisters, strapping, or artificial evacuation of the fluid. I have several times punctured the fontanelle half an inch to one side of the median line, and after withdrawing a quantity of fluid have strapped up the head tightly with carefully applied strips of afficeive plaster. But although the patient appeared manjured by the operation the finid always quickly re-accumulated. If the skull is enlarging rapidly, I believe the strapping treatment to be decidedly injurious.

CHAPTER XIII.

OTITIS AND PTS CONSEQUENCES.

(Paralest Miniscotts: Throughous of the Sewlant Statues: Encephalitic)

Owns in the child is a common discuss, and may lead to very serious cussequences on account of the facility with which inflammation can extend from the tymponic cavity to the interior of the shall. During the first few years of life the musloid process is in a rudimentary state. In the some child, therefore, the mustoid coils are limited to the horizontal portion which lies behind the tympanic cavity, and above and slightly posterior to the sublicey meature. It is only at a later period that they extend downwards and backwards to form the hollow of the masteid process. These rells communicate with the tympamen, and share in any colombal process of which that excity may be the sent. The trupaneou itself is appended from the interior of the skull by a thin layer of bone, which is often a more transluss at shell. This, according to Toynbor, may even be deficient in places, so that the mincons fining of the tympaterm is sometimes been and there in actual contact with the dura mater covering the temporal beat It is then easy to understand how, without any disorganisation of the boxs. layer itself, infimuration may extend from the tyngenic coulty in the interior of the eranism, and give rise to serious disease of the brain and its membranes.

The inflammation may spread from the ear to the shall-navity through either the reof of the tympanem or that of the mustoid cells. It may also pass through the upper wall of the external ambitory name, or he corouged invaride by means of the internal ambitory means, which is finelly a prolongation of the beain membranes. The petrons bone may or may set participate in the disease. Sometimes it becomes carriers. In other cases serious disease of the brain and its membranes may be set up, although the beary layer exporating the our continue from the interior of the emaker

seems in no way affected by the inflammation ground it.

Countries.—In childhood there appears to be a special tendency to estarch of the muccous membrane lining the middle car. You Tedach has connected upon the frequency with which is young persons this condition is discovered after death, without any symptoms of the demagement leading been observed floring the life of the patient. The tendency is heighfuned by the acrofulous disthesis, and in the subjects of this conditational state the externa has a special prosences to become a serious apparation. Discusses which have an influence in providing the manifestations of the serofulous cachesis are very upt to be followed by supparationities as scarlatina, membra, and small-pox. Besides these cases, call or slight injuries to the ear may set up the same condition, and sometimes the tympersum becomes affected as a consequence of similar disease in

parts around. Thus infamoration may spread to the middle car from

the external anditory mealurs or from the plarynx. Dr. Knapp, of New York, states that in the majority of cases the occurrence of suppurative extern of the middle car is due to cold, which affects first the unsu-plaryngeal excity, and then specials up the Enstaction tube. In 8.78 per cent, of his cases he attributes the immediate cause of the otitis to sea bothing; in 7.74 per cent, to scarlating. The extension of the inflammation further invaries to the skull-cavity may be determined by any agency capable of setting up arute inflammation in the car. Cold is a frequent cause of this disaster, and blows upon the heal may produce the same result. It is an occusional complication of deutition (see page 560).

Morbid Asstoncy — When the inneous membrane lining the tyraponemis becomes acutely inflamed, it is of a deep red colour, and its vessels are full and distouted. In the chronic stage the nuccus membrane becomes thickened and pours cut a copious puralent accretion which usually perforates the tyrapunic membrane and issues from the external mentus as a yell-wish white discharge. A chronic office may continue for months, or even years, without producing much inconvenience. But sometimes the inflammation extends to the bony will, which becomes curious and soft-and; or the inflammation suddenly assumes an acute character. In either case violent symptoms may be all at once noticed from implication of the brain and its membranes. The consequences of spreading of the milimmation to the shall cavity are the occurrence of parallels memigrifis, and

of encephalitis with abscess of the brain.

In purulent meningitis there may be inflammation and the kening of the dura mater (parlymeningitis) and this membrane may be separated from the potrous home. Often suppuration takes place however it and the hone; the membrane is perforated, and pus is efficient into the civity of the arachecod. If disease of the petrous home is one of the countypences of the shitis, thrombosis of the cerebral sinuses may occur, and promia may be produced. In all cases where the dura mater is infamed, philatethe and thrombosis of the granual singues are frequent consequences. The congulation of the blood and arrest of the circulation in the venous clannels is due to narrowing of the calibre of the same either by pressure upon it of inflammatory products or by thickening of its walls owing to influentatory inditrations and absesses. As a rule the lining membrane of the sinus is smooth, but it semetimes becomes rougheard and dufflooking. The clot which forms the thrombus is fibrinous, and contains but few red blood corposeles. It is therefore whitish-yellow in colour, or slightly gelatinous looking from the number of white corposeles. It may be free in the sinus or form loose afficeions to the walls. These decolourised clots are sometimes very extensive, and may reach from the latend sixus downwards to the year cave. If the child five long enough, the theombus may soften in the centre, and the disintegrated fibring may present a puslike appearance to the sye.

The pix mater is almost always affected. Its vessels become dilated and filled with blood; small patches of ecclymosis are scattered about; and a yellowich or greenish exudation is poured into the subaraclareid tissus. This exudation may be solid like an ordinary false membrane, but is often distinctly purulent. It varies greatly in amount. The cortex of the brain, as might be expected from the intimate connection which exists between its vessels and those of the investing pix mater, usually shares in

the inflammatory condition, and becomes injected and softened.

Exceptabilitis usually occurs in patches. The vessels are dilated and congested; there is effusion into the tissue around them which becomes

smollen, red, and soft (armie red softening), and can be washed any by a atream of water. Surrounding the influence patch the cerebral tions a congested and softenatous, and of a yellowish solour. As the process pose so the colour of the discussed spot changes from red to greening; in anisotrace gets softer and softer, and the central part breaks down into a yellow or green parallest matter. The wall of the abscess than formed consists of bosin substance more or less softened. The sent of the abscess in cases of otities is in the adjacent part of the middle or posterior loke of the corebrain, or in the cerebellum. As a consequence of the abscess and influentiation of the brain-emistance at the spot, there is calargement of the affected part of the brain, its convolutions are fluttened, and its safet partly obliterated.

To produce these secondary results in the skull cavity it is not are sarry that carries of the petrous bone should occur. In many cases the loss itself is found intact, the dura mater even may have the appearance of health, and a layer of health; looking carelled substance may separate the

abscess from the surface of the brain.

Symplems.—Acute oritis may be present without any symplem indieating the existence of the influmention. Usually, however, se the paralent secretion accumulates in the cavity of the tyngamum, especially if the tymposic toembring shares in the inflammation, there is sovere pun in the car and side of the head, and pressure on or around the ear ascresses the suffering. In bubbes carache is a common affection, and may see be a conse of convulsions. The child cries incessantly with a peculiar shall screen, and refuses to be conforted. He burrows his head in his tilles, or rests it against his mother's shoulder, often lifes his hand to his had and refuses the bottle or the breast. If the pain cease or sobside for a fine, he falls nelesp, but usually wakes up again after a short internal screaming leadly, and continues to cry again incosardly as before. After some hours of this agony the tympanic membrane gives say, a discharge of pus issues from the mentus, and the cry at once censes. Exminates of the our in those cases solden affords much information, although the passage sometimes looks red and inflamed,

When a chronic oblis exists, there is a more or less copious purslent discharge from the our, the tympanic membrane is destroyed, and the source of heaving is blanded. So long as no more pas is farmed than our pass readily away, no other ill effects are observed, and the absence of the tympanic membrane usually allows of free escape of the matter ended. Sometimes, however, an accumulation of pass takes place in the matcol cells, and ill consuperness follow. The chief danger in these cases is the occurrence of a fresh acute attack. The otorrhom then ceases at one, there is an interese pain in the car and side of the head, and often memgitis with all its serious consequences assess. It must be remembered, however, that as obitis may exist without giving rise to symptoms, mentagitis occurring as a result of inflammation of the tympanion is not always preceded by otorrhom. Sometimes the symptoms of meningitis precede

the otorrhou, and sometimes the otitis is latent throughout.

In an ordinary case of extension of the inflammation to the nestings the sequence of symptoms is as follows: A little child of a few years oil has a discharge of porulent matter from the ear. This may have followed an attack of severe caracle, or may have begun without pain and continued without discussiont, although the hearing on that side has been noticed to be dull. The atordam continues for several months. Occasionals the child is feverish and complains of neuto pain in the affected are set side of the head. At the same time the discharge from the menine reases to flow. After some hours, however, the pain subsides and the running respects. At length the patient is seized with high fever, and has an attack of sielent convulsions. After several repetitions of the fits, in the intervals of which he seems drowsy and stopol, he sinks into a state of come and diss within the week. This is called the convulsion form—long standing courfson; then, suddenly, fever, convulsions, come, death. It is the slope the discuss takes in bulkes and clubben under two years of age.

The fever is high. The temperature rises to between 104 and 105°, and undergoes at first little remission in the mornings. The pulse absent always intermits more or less completely, and very often falls in frequency, sinking to 75 or 80. This, however, is a very variable symptom, and sensitives the pulse remains quick throughout. Pain in the affected side of the head is sediom absent. The roungest elibliers, in the intermix of convulsions, may be noticed to mean and put their hands to their bends. Respirations are quickened and may be perfectly regular, elthough sometimes we notice sighing respirations, and the bounding towards the end may assume the Cheyne-Stolos type. The pupils are generally contracted at first, and become dilated later. They are often mergual in size. There may be equinting of one or both eyes, and semetimes we note a paralysis of the face on the affected side.

The convolvious are violent, and, for the most part, bilateral. In the intervals consciousness is not completely restored, the sladd is heavy and stapeded, taking little notice of persons and things around, although his aftention can be usually attracted by calling him loadly by mans. He is sary restless, and often keeps one or more of his lambs in constant more-next. Rigidity of the joints may be present, and if there is any accompanying spinal maningitis, the local is firmly refracted on the shoulders with rigidity of the muscles of the media. The abdomen is soldon markedly retracted as in tubercular meningitis, and the characteristic doughly feel of the abdominal wall is also usually absent. The child refuses his bottle, and often can scarcely be made to scallow liquid from a apone. The discuss runs its course rapidly. After a day or two the convulsions become less frequent. The child lies plumped in a deep stoper, and after remaining countons for a variable time, does without any return of convictors.

In certain cases the disease may run an even shorter course, and death

take place with startling rapidity.

A little boy, aged treefre months, strong-looking and well neurished, was seized with comiting at 1 a.u. on February 16th, and continued to comit at intervals for twelve hours. He then had several fits, and at 3 r.u. was brought to the East London Chibbran's Hospital. He was seen by Mr. Scott Bettams, the house surgeon, who noted that all the limbs twee conveiled and the pupils were dilated. When the fits censed the child still continued insensible; there was mystagmus; the pupils were equal and dilated, and acced well with light; the conjunction were inscusine; there was no squint; the corderal flash was fiving marked; the limbs were flaced.

At 8 r.m. the child was still insensible. He had had no more fast, pulso, 150, with occasional intermissions; respirations, 40; temperature,

103 ; pupils equal, and still acted with light.

All through the night the club! remained inventible. There was not sensiting, and the convulsions were not repeated. No twitching was noticed, and the bend was not retracted. He died at 8 a.u. Before death the temperature was 104.

On examination of the brain, the whole convexity was found could with yellow lymph which had extended to the under surface of the found labor, and had glood the autorior and middle lobes to one another. There was no dattening of the convolutions; no excess of fluid in the contrides; no examination in the optic space; and no inflameation of the membranes at the base of the brain. No gray granulations could be seen; the brain was form, and account perfectly healthy; the corebral sixuses contained semiffuld dark blood.

In this case there was slight discharge from the care, but without offensive smell. It is dealerful if this had any part in producing the nemigitis, for the dura mater covering the petrons bones had a healthy appearance. Nothing in the history of the child could be discovered to account
for the illness, for although he had had a cough for a fortnight, and had
whooped during the last two days, this could not be looked upon as
a determining cause of the inflammation. It may be remarked that
the symptoms above described resemble exactly those offen present in
cases of meningeal homocrange in the young child, with the steeption that in this case the temperature was elevated. A raised temperature, present to meningitis and absent in homocrange, appears to be
the single important symptom by which the two discusses may be dis-

tinguished.

Above the age of two years it is usual for the meningitis to assume a different shape. Convulsions are a less prominent symptom; instead we find a more or less violent delimins. Hence Killiet to whose labours ell descriptions of merangitis in the child are so much indebted—has called # the "physicial" form. It is of longer duration than the convelsive unide. and resembles more meningitis as that disease occurs in the adult. The child complains of severe headache, is neithfed and restless, and very rapidly becomes delirious. The delirium is noisy. The child mass also the pain in his head. His eyes are red and wild-looking, his pupils restracted and often unequal in size. The pulse is quick and irregular, and may be completely intermittent. His temperature is high marking 104" or 105", as in the preceding variety; and his breathing is rapid, although usually regular. After some days the delatura becomes less violent. The child less entervals of spiret in which he appears to be unconscious. He lies with his cyclids half open and his eyes turned upwards, mosting toensionally; the nuncles of his free twitch; there is trismus or gradue of teeth; and his head is often retracted upon his shoulders. As the disease progresses the come becomes more constant, but at first a touch may excite tished deligious struggles, for there seems to be general hyperaultesia making the alightest pressure painful. The pupils dilute, and us in-sensible to light; there is often oscillation of the globe of the eye and significant. The pulse becomes very frequent, and the respirations are of the Chayne-Stokes type. There may be rigidity of the joints. The councontinues protound, and the patient gradually sinks and dies. Usually there is profuse sweating before death, although the temperature certificate high; and the disease may terminate in a fit of convulsions.

Sometimes the temperature falls considerably before death. At other times it rises rapidly to 108°, or even higher. The duration of the pictuitic form of the disease turnes; its course may be rapid like that of the envulsive sariety, but sometimes it is prolonged to three, four, or more well. In these alones cases the illness often assumes a subscute type, with only slight elevations of temperature; but at any time the heat of the body may

undergo a sudden and apparently causeloss increase.

In many cases inflammation of the dura mater is accompanied by thrombesis of the coroleal sinuses. The symptoms, however, of this condition are masked by those of the accompanying meningitis; and its enistence, therefore, can solden be more them suspected. According to Gerhardt, we may sometimen detect on the affected side comparative emptiness of the jugular ven, which is no longer filled with blood from the obstructed same; but this is a symptom the existence of which it must be difficult to accretion. In ordinary cases the occurrence of shivering, or great variations in the temperature, with signs of metastatic deposits in the lungs (sudden dyspoon, cough, and perhaps scattered zones of excipation about the class or back) would point to the probable occurrence of cerebral philabitis.

When movinging occurs as a consequence of other causes than others, the symptoms are as described, with the addition, in most cases, of a prolatinary stage in which the child complains, if eld enough, of headache, gradually increasing in intensity. He is feverish, counts, is very restless, and his ideas are confused. The course of the discuss is therefore rather

longer than in the form described above.

Inflammation of the brain (encephalitis) is more frequently than the preceding a corresponde of office. Indeed, it has been estimated that fully tall of the cases of abscess of the brain are due to inflammation originating in the saiddle or internal car. The inflammation is limited to certain spots being usually confined to the cerebram in the immediate religious forms of the potrons bone. Sometimes, however, it is found to children, as it is commonly in the refull, in the cerebrilium.

The symptoms are often obscured by meningitis, which may exist at

the same time; and there may be thrombosis of the cranial sames.

The disease begins with pain in the head, which is indicated in the young child by repeated arrenting and frequent movement of the hand to the heal. The child seems drower, and behaves us if only half nucke. He takes food anvillingly or refuses it altogether. The bowels are generally confined, and there is usually vomiting. The temperature seldom rises above 102. The pulse is generally slow (10 to 80), and the pupils are contracted. The drowsiness soon deepers into stuper, and there is rigid-ity of the joints, usually limited to one side, with perhaps paresis or paralysis of the limbs. Much depends upon the seat of the abuves, and whether it affects the centres of special sense or interferes with the conduction of motor influences. Thus there may be incomplete hemiplegia from compromion of the fibres of the internal empoule, paralysis of the third nerve from pressure on the cerebral pedrastle; or paralysis of the facial norm. The less of power is almost invariably limited to one side of the body. Convolutions may occur; there are frequent twitchings of the facial muscles, and the child grinds his tooth and makes movements with his mouth as if chewing. The stuper is not constant. At first the child can be roused by being spoken to lowlly; and occasionally the mind becomes clearer after a time. The child will often begin again to answer questions, and may even recognise his friends. The respirations are quickened and very irregular; the pulse, after the first few days, increases in rapality, and often becomes intermittent. In scute cases the stuper soon becomes more profound, and deepens into a coun in which the child dies. Convidence if previously present, may come when the patient becomes termitons, or may return before death. The temperature remains moderstely elevated throughout, or falls notably before the fatal termination, or rion to a high level during the last few hours of life.

A rickety little boy, agod two years, two admitted into the East London Children's Hospital with the symptoms of severe pulmonery extent. For some months the child had been subject to oterfloor, but there we no history of carache. He went on well at first, the cough improved and his cheet scened greatly relieved, when, on December 7th, is temperature rose to 102°, and there was a copious discharge of pus from the left on The discharge continued through the week, but the child seemed to other little inconvenience from the state of his our. He was lively, took in food with appetite, and has temperature, which for a few days had been

On December 13th a change was noticed. The child are made frequently and secured indifferent to his food. His temperature that everage was only 99°. On the norming of the 14th the temperature was still 19°, but the pulse, which had been always considerably over 100, was send to have fallon to 8a. The child was shrowly and would not be thoroughly reused. He bay on his right side with a purity-locking flusted face, gentling his teeth and making other movements with his jiva. The pupils were equal, slightly contracted, and sluggish a occasionally there was a slight squint. Some righlity was noticed of the right knew and effect joints. The child took no notice of questions and refused food. At 8 as the temperature was 100°; pulse, 96°; respirations, 34°; and in the evening the stuper deepened into come.

For the next forty-eight hours the child's state continued much the same. He was completely insensible, and aquinted outside with the right eye. During this time his temperature was 160"-161.4", pulse, 124-130; respiration, 21-48, and very irregular. The abstence was slightly

retracted; the bowels were confined, and he remited once.

On December 16th the boxels had been moved by specients, and those was some approach to consciousness. The child resisted the feeding cap, and in the ovening seemed to recognise the nurse. He was bond to see "no" repeatedly when offered drink. He could move both his legs. The

temperature was 1007-101

On December 17th the stoper was even less, nithough the patient enmained very drowny; he burned his local when called locally by mass and
answered when select to drink. There was no flashing of the face normy
redness when pressure was made on the skin. Temperature, 100°-181.5°;
pulse, 156; respirations 38. On the 18th the child had two file. These
were followed by no rigidity of the joints; but the patient by in a semi-contess condition, although it was stiff possible to rouse him by local miling.
From that time he gradually sunk, and died on the afternoon of the following day. The temperature shortly before death was 191°. On examintion of the body, the petrous part of the temperat bears was least denuded of dura mater at one spot, and the membrane around was trule—
filmed. An above was discovered in the adjacent conferences.

The course of curve planting in number upid. It may lost only five or six days, or may be prolonged to two or time mechs. Sometimes after a fine the acute symptoms disappear, consciousness is recovered, and the child leadth may appear to be restored. It is even said that such shidom may grow up to adult age, the abscess having become engated and cossing to

be a source of irritation.

Diryosan.—Othis should be empected in all case where a young delta other incessantly without any symptoms being detected—such as drawing up of the legs, tension of the abdominal wall, unlikelithy evacuations, etc.— to draw attention to the belly. Abdentinal pain is intermittent, and the cross rease when the uneasiness subsides. Farache is constant, and until relief is obtained by the discharge of pur from the meatus the child cross

with a pereistence which is very characteristic.

When parallest maningitis occurs, the onset of violent convolutions, with high fever, following upon under constant of discharge from the sar, are very ampletous; and when we remark that in the intervals of the fits the child remains drawing and stupid, refuses food, and takes no notice of accurated faces; that he is restless contracts his brows, and constantly moves his hand to his head, we can speak with some confidence as to the nature of the case. In reflex convulsions the usual is clear between the attacks. Drowsiness or stupor with recurring convulsive movements is very characteristic of a constant origin. An alteration in the pulse adds a new and important feature to the case. A pulse of 80 in a young child is a slow pulse. If the child be feverish the contract between the buildy best and the comporative infrequency of the arterial pulsations is still move striking. Therefore if to the preceding symptoms we add a slow and perhaps intermitting pulse, our suspicious are sufficiently continued.

Fevers or inflammatory discusses in the young child may begin with the combination of pyroxis and convolutions. In the case of the crambomata we should find some of the unity symptoms of the craptive fever; and the convolution movements themselves are few and not violent. There is little restlessess, and between the attacks the child takes notice and tecognises has friends. In the case of unliganet scarbitors, beginning with convolutions and delirions, there is little beachade, and the coupling appears

within twenty-four hours of the first symptoms of the fever.

Precisionia in the child not unfrequently begins with convulsions, and there is high precia; but the absence of stoper and of headache, the action of the nares, the greater rapidity of the breathing, and the perverted pulse-requiration ratio would serve to exclude meanings is although a physiral examination of the class night reveal to signs of discuss. In the socalled "cerebral procursois," where there is delirium and headache, with stoper and high fever, the nature of the disease may be after detected endy by an examination of the class. Sometimes, however, physical signs are also to appear, and in such a case we must tend before preciousning an opinion. Usually the lead symptoms of cerebral parameters are not violant, but assume more the characters of tubercular meaninging than of the simple form of the disease. The distinction between these two varieties of meningitis will be considered characters (see Tabercular Meningitis).

From unersia and the various forms of cranial disease unaccompanied by pyronia, the high temperature which is one of the characteristic features

of emple meningitis will form a sufficient distinguishing mark.

In the case of encephalitis, drowsiness with consulsons or rigidity of joints, or both, followed by come and homiplegia—the symptoms occurring in a child the subject of electric obserbus, or following upon an attack of source surache,—sufficiently recent the nature of the disease. When there is no paralysis it is difficult, perhaps impossible, to distinguish inflammation of the substance of the brain from inflammation merely of its membranes, and a certain amount of messingitis usually accompanies the encephalitis.

Thrombosis of the corebral sinuses can soldon be more then suspected. If the dum mater be influent, it is reasonable to suppose that the summer of the user of disease are also implicated. If in a case where the corebral symptoms have evidently followed upon a long standing otherham we can

detect deficient filling of the jugular win on the affected side, or can discern signs of powers—rigors, or rapid variations of temperature with evidence of metastatic deposits in the longs or other organs—we may concinde that thrembosis in the sinuses has probably occurred.

Programs.—Oritis can usually be carred by suitable treatment, and it, while the discharge continues, proper measures be taken to prevent the collection of puralent matter in the tymponic easity or made of selfs, there is no reason to apprehend any ill results from the state of the eur.

If extension of the inflammation take place to the skull easity, the west rousequences may be unticipated. The patient does not indeed always die, but the proportion of recoveries is very small. In encephalite it is constron for the stuper to clear away more or less completely for a time, and therefore takes hopes should not be mixed by the patient's apparent amendment; and the friends should be weened that such signs of inprovement are seliten to be trusted.

Treatescat.—When obitis occurs, it is important to remove put early from the interior of the tymponum. This is done by inflating the Eastschian table by means of Politzer's log. The operation is easily performed upon children, as it is not necessary that they should smallow. All that is required is to send a forcible blast of air through their closed postule. If the purelent contents are not removed by this means the tymponum must be punctured. When a discharge appears from the means, the pumps should be syringed several times shally with marm water. If any measures appears to be felt in the car, counter-irrelation with tincture of isdins may be employed behind the pinna.

A chronic oformhon should be stopped as quickly as possible. Any mold astringent injection may be employed; but care should be taken thoroughly to cleanse out the passage with warm water before using the astringent lotion. In obstipate cases the use, several times dely, of as application composed of sulphale of zinc and borax, ten grains of each, and one dracker of gives inc, to the conce of water, will often arress the discharge very quickly. Gives inc of turnin dibuted in the proportion of one-dracks to the conce of water, used frequently, is often of service. Scenetimes the injection, case dully, of a solution of nitrate of silver (gr. x. to the or) will haven the cure. In cases of languatanding otoerhoot, when the menlemne of the tymponom is destroyed, the child should wear small pleight of cotton wood in the cur, except in very warm weather, as a fresh cutout is easily excited by cold and dump.

When meningitis occurs, the soom should be kept in a half light : free ventilation and perfect quiet should be insisted upon; and the themsenou must be watched that the temperature of the room does not rise above Mr. The feet must be kept warm and the head cool. It is advisable to remove the heir, and keep the shaven scalp constantly covered with an icebig. The bowels must be opened freely by aperients, such as mices and plan. Opinions deffer as to the value of morphis in these cases. Marylin. even if it produces to impression upon the infahrantion itself, on search be injurious. Its use has at any rate this advantage, that when the deld's kept under its influence the more violent symptoms are moderated as much pain is saved to the friends by the apparent relief thus extended to the patient's sufferings. Counter-irritation although often advocated is a little talee; and the old plan of leeching behind the curs has preprietable to me to be followed by any improvement. Our great trust should be placed in the constant application of cold to the head, in period quet, and to free purgation. Encephalities is to be treated on similar prisappea

CHAPTER XIV.

TUBERCULAR MENINGITIS.

A more maningitis induced by tuberculosis of the pia mater is underliable the commonest form of intra-cranmi disease to be met with in the child. The symptoms to which this variety of meningitis gives rise are sufficiently characteristic to merit a separate description; for the seat of the inflammation, the insidious beginning of the illness, and its well-defined course are very different from what we find in simple inflammation of the meninges, and make the affection for all practical purposes a differ-

ent dissone,

Industs and children of all ages are subject to tubercular meningitis. It is little less common in infants than it is in older children; but in the former the disease savariably occurs in the course of an attack of general tulercalous. It is then called "secondary," for its symptoms, being prereded by others arising from inflammatory affections of various organs also dependent upon the disthetic state, are completely masked in those coriter stages, and only reveal themselves as the more violent phenomena which mark the closing period of the almost. After the age of infancy the disease usually assumes the primary form, for although other organs may be the sent of Inberele, the symptoms first noticed are those arising from the brain, and these retain their prominence throughout the course of the attack

Counties - As a form of sente taber-closis, tubercular moningitis is dependent upon the same predisposing causes as those which give rise to the disthetic condition. It is worthy of remark that in families in which the inhercular disthesis exists, not only the tendency to inhercular formation is handed down, but often, also, a pronensus to the particular slaps: the disease is to assume. This is especially the case with regard to the meningsal form of the analyly. It is not uncommon to bear of several children of the same family being carried off by tubercular meningitis; and in doubtful cases the fact that a previous child has fallen a victim to the intra-enguial inflammation becomes an important aid in arriving at a decision.

Although children who become the subjects of this disease are often weakly and delicate-looking, with a marked tuberenlar family history, this is not always the case. It is not uncommon to see the disease break out a children who are stout and vigorous, and who certainly differ widely in aspect from the delicately formed and fruil-looking type which is considered characteristic of the tubercular diathesis. It is possible that infertion of the system by softening cheery matter may induce the disorder in a child free from any constitutional tendency to this form of illness; but in most cases, however unlikely a subject the shild may appear to be, careful inquiry will discover evidences of "consumptive" tendency in colleteral brunches of the family, if not in the direct line from which the child has descended. The disease is common in all ranks of life; but as pounty enhich too often implies reckless indifference to insunitary agencies, or helpless submission to them, even more, perhaps, then actual primine of food) may help to determine the outbreak, the affection is especially con-

mon amongst the poor.

Of the exciting causes, possibly any injury or shock to the head, such as blows or exposure, may help to induce the illness. Over-excitement of the mind, whether from study or smassement, may not improbably have the same effect. It has been denied that pressing sensitive children lowwards in their learning can not injuriously in this direction. I am however, strongly of opinion that such headless expedition is very huntral to the child, and has often determined the occurrence of the meningal

inflammation in subjects predisposed to tubercle.

Marked Austrony.-The starting-point of the disease is the development. on the pia mater of numerous gray groundations as a result of the consti-totional state. These gray nodules are found especially on that part of the membrane which covers the base of the cerebrair. On the ris major of the corebellum and convexity of the brain they are much less nameous. and indeed appear often to be quite absent from these situations. On careful inspection the gray or yellow nodules may be noticed following the course of the yeards, especially of their smaller leonches. They dividy congregate in and about the Sylvian fiscure, and may be often seen also in the chasms of the optic nerve. If very numerous, they may be frend sprinkled about like a fine glistening dust in these regions and along the tries of the hemispheres. The larger granules may be as big as a pink head or even a hempseed. By the microscope the small modular bedies are observed to lie upon the vessels within the perivascular carels, and to adhere closely to their costs. On the larger branches they form propotions on one side of the artery. On the smaller, they may completely embrace the record. In either case—and this is an essential porticular they project inwards as well as outwards, so as to narrow the charged at the tube, and they may even perforate the delicate works and pretrain into the interior of the vessel. The granulations are formed by excessive prediferation of model from the spithelial liming of the perivascular anale; and the obstruction to the samewise channels which moults from this excessive accumulation causes thrombasis within the small vessels, great impoliment to the rirectation, where congestion, and extensive collumn MUSTOUS.

As the moning of intervalous is usually merely a part of a general factribution of "inherolo" over the body, the gray granulation is found and an other organs and serous membranes, and has been noticed by Colaises

on the vascular tunic of the retira.

The vessels of the pix under are engaged, and the numbers is couly and often adheres closely to the surface of the benin, so that when ten away it brings with it small particles of the corchial substance. How a loss explicits rellowish or greenish jelly-like exhibition is found in the number of the substancement tissue, often running in streaks along the course of the vessels. It is nearly confined to the base of the brain

An shoost invariable feature in these cases is the contractar effects. This is so constant a phenomenon that it used to be looked upon as constituting the essence of the disease (hence the name of "neute hydrocylalus," by which the affection was formerly distinguished). The quantity is often very considerable. It may distand the ventricles flatten the co-volutions, and even come rupture of the appune lucidum. In appearance

it is clear, or turbid with suspended floreident particles, or tinged with blook. The screbnil substance around the ventricles is softened. The softening is attributed by some writers to the effects of mere imbilition and amountain. Others ascribe it to inflammation. Dr. Bastian is inclined to the opinion that it is often the result of degenerative changes set up by the amsurcous condition of the central brain tissue; and that both the ventricular effusion and the softening result from the pressure of the blood in the overleaded veins and capillaries, and in some cases, perhaps from actual thrombosis in the veins of Galen.

Besides this sedtening of the central parts of the brain, the certical substance is inflamed as well as the pin unter which invests it, and sometimes spots of softening with capillary honorrhapes have been seen in the substance of the corpora striats and the optic thalani. As a rule the brain substance is pule and bloodless, and the greater the centracular effection the

whiter and softer the cerebral tissue becomes,

The above morbid appearances are singularly constant in cases of tubercular meningitis. The granulations, the conded lymph, the vescular engagement, the superficial encephalists, the contricular estusion and the white softening of the contricular scales are almost invariably to be discovered when death has occurred from this discuss. In addition, signs of more or has general tuberculous are also present. These in transfer may be sprinkled over with the gray granulation. In older children however, the maningitis occurs before notarities has been approximately impaired, and is perhaps shell the surfiest indication of the diatheses. In such cases the other organs may be builting, and the granulations scattered over the pia mater may be the only morbid formation to be discovered in the lody. Usually, however, signs of the cachetia are perceptible in other organs, and sometimes the granulations are so sepally and generally distributed that we cannot but wonder at the little interference the constitutional and local states had exercised upon the general boath of the patient.

Symptoms,—The onset of the illness is almost always preceded by a prodrornal period of variable duration. This is to be expected in every nadedly where discuss of special organs is dependent open a general districtic state. In all forms of intervalse discuss at is a rule which is rarely infringed that local symptoms are preceded by phenomena indicating the general disorder.

of nutrition induced by the constitutional cachesia.

The premonitory symptoms may in severity, parily according to the age of the sheld, parily according to the previous state of his lendth, and parily according to the intensity of the distribute influence to which he is subject. In young habies, in whom the discuss invariably occurs at the end of an attack of general taberculosis, the head symptoms are preceded by others indicators of the discuss from which he has been suffering. In older children, especially in those in whom the distribute tendency is computatively feeble, the produced period may be short and the symptoms triding. Therefore in different cases we may find marked variety in the duration and severity of the symptoms which immediately precede the enthreak of the discuss.

Two forms of tubercular meaningitis, a primary and a secondary form,

will be described.

In pricery tubercular meningible the produced period is often short, and its symptoms on account of their indefinite character, may excite little attention. The child is thought not to look well, but he makes no complaint for he suffers no pain. He generally becomes thinner and poler. and his appetite is capricious. The less of firsh is, however, sellon seesiderable, and may be only recognised by the use of the weighing scales. for no diminution in bulk may be visible to the eye. He is negally listher and unwilling to exert himself; sits and lies about instead of joining in the sports of his companions, and if urged to take part in their games, chjects that he is tired. He is often drowsy, and may be noticed to sten in the suiddle of some childish employment and fall uskep on the door of the room. A change in character is frequently noticed; and this is a symptom so common that it should be always inquired for. The change is mounty indicated by an increase in his emotional sensibility. If reproced in shows engregated distress; his enderments exhibit an unaccustomed warmth; he readily takes offence, and eries without apparent remor, or sits morely and silent in a corner of the room. A certain slaggishness of mind is also apparent. An ordinarily bright child becomes stural over his lessons; he seems drowsy and incapable of fixing his mind upon his task. There may be headarhe, and he may say that the room seems burning round. Sometimes there is confusion of sight. The borsels may be irregular and costive. The temperature during this period is often slightly elevated, and the whild looks flushed at night and has hot dre hands. In one case which came under tay own notice the everang tenperature for the five nights immediately preceding the outbreak was 100.4", 98.4", 98", 99.6", and 97.6"

The special symptoms of the disease are usually divided into these stages; and when the affection is a primary one this arrangement is justified by clinical observation. There is a stage of invasion, in which the indefinite samptoms of the producted period are suddenly broken in upon by the first indications of local mischief; a stage of irritation, in which there is confited nervous activity; and, finally, a third stage, which is marked by diminution of servous power and abolition of the functions of life.

The first symptoms of the stage of invasion are in the large majority of cases vomiting and headache, and the bowels which were before restire become obstinately constituted. The vomiting is often repeated and distressing, and occurs without my relevance to taking food. It is its deed, characteristic of a cerebral origin that retching and coniting saws in the intervals of the meals -towards the end of digestion when the sionach is nearly empty. The heaving is often excited by raising the child up lute a sitting position. The matters ejected consist of feed and below or watery fluid. The bendache is generally severe. It is referred to the front or top of the land, and seems to occur in puronyans so that the patient acreums out with pain. The expludagia is increased by movement or by a bright light, and is accompanied by dissiness so that the child singgers in his walk. The expression is distressed, and may be initable or spiteful. The tengue may be clean, but is often thickly furred; the thant is often great, and appetite is completely lost. The child taken early to his bed, from which he never again rases. The abdomen is of normal fulness to the eye, but its parietes have a peruliar, soft, dought but which is very characteristic, and are easily compressible. Often there is marked loss of elasticity of the skin. The pulse is generally repol and regular at this time, but may be slow, and sometimes a fall in the regular of the pulse is the carliest symptom noticed. Thus, in the child whom case has been referred to, a fall in the pulse from 100 to 74 nomined at the evening preceding the actual outbreak. The temperature is noderately elevated (100" to 101"). The breathing is generally irregular, and may be unequal and sighing from the first. This is a symptom of great

importance. The child takes several quick breaths in rapid succession. Then the respiratory movements cease, and during some seconds the chest is motionless. The patient then heaven a deep sigh and pauses again, or his breathing returns for a few minutes to the natural chythm. Signs of great irritability of the narrows system are mre at this early period of the illness, although in exceptional cases the discuss may be unkered in by a convulsive science. Still, there are sufficient indications of necessary agitation. The senses are excessively acute, the pupils are contracted, and light is painful to the eyes; the child is distressed by loud noises; and by perasthesia of the skin may be present so that a touch is poinful. During this stage the urine is scenty and may contain excess of phosphates.

Of these symptoms the most important are the confinition of headarks, comiting, and confined boxeds, with overgular breathing. Even if the latter be absent, the occurrence of conding and obsticate constitution with headache in a child who for some weeks has shown signs of fulling

natrition is always to be regarded with anxiety.

In the second stage—the stage of irritation—the symptoms become nero aggressed. The headache increases in severity, and the child often becomes delirious. He lies in his bed with his eyes closed—often squeeced together, and his cycleows contracted—making chewing movements with his jaws or grinding his teeth lendly. Sometimes he screams out as if in pain. If called, the child usually opens his eyes, but he massers questions anyillingly or states at the speaker angrily and makes no attempt to reply. Whether from headache or irritability, the cyclrows often have a sowd which gives a psculiarly forbidding expression to the face of the patient.

The pulse generally falls in frequency at this stage and becomes intermittent. It cames in rapidity from 60 to 80, and the finger pressing the artery finds the rhythm of the pulsations interrupted at irregular intervals. by the complete conjusion of one heat. It is supportant in examining the pulse in these cases to seize an opportunity when the child is lying quietly and has not recently made a movement; for a pulse which is slow and inregular during repose may become quick and regular for a time upon the alightest change of position. The temperature is generally lower by a degree than in the first stage, and may rise to higher than 10°. The respirations continue irregular as before, and often at this time assume this Cheyne-Stokes type. The pupils now become diluted and are often singgish. Sometimes there is a slight squart, but this is seldem more than a passing deviation. Examination by the ophthalmoscope, if it can be managed, shows a congrested state of the retiral vessels and disk and sometimes small bedies like gray granulations can be seen projecting from the sides of the small retinal arteries. Towards the end of this stage the voncting usually course, but the constitution continues, and the child shows no desire even for liquids. There is often retention of urine, and the notions are passed in the bed after an speriest. The pulse generally quickens again, and the temperature rises. The abdomes usually becomes markedly retracted, but still remains soft, doughy, and compressible. Besides, a singular tendency to finshing of the skin is noticed. The cheeks raddenly become red, then the flush dies away leaving them apparently whiter than before. Slight pressure on the skin, especially of the face, ablomes, and front of the thighs, produces a bright redness-the "cerebral flash" of Tromssmu, which remains visible for a considerable time.

The principal symptoms of this stage are the fall in the pulse and temperature, the spathy and drowsiness of the child, the violent herefache, the pregularity of breathing, the exceptation of the abdomen, the dilatation of the pupils, and the passing simbismus. The cerebral flush, unless very virit, is an uncertain symptom, for it is often well marked in cases where there is no reason to suspect tubervalue inflammation of the cerebral maninger.

In the third stage the temperature gradually rises again, and formula the end may athen a high elevation. The pulse also increases in middle and becomes regular, but the irregularity of breathing continues. The most prominent symptoms of this stage are the increasing coun and the occurrence of convulsions and paralysis. The child, who before could be roused by load calling, now makes no sign of response, or if for a noment he raises the lids, he closes his eyes again alracet immediately. The aspect of the child at this period is often very classicteristic; for if as often happens, the disease have been preceded by few signs of all-heilth and the patient have retained his plumpness, he presents to the unels. rated eye the appearance of a healthy child in quiet shunber. His cheeks are brightly flushed, his countermore perfectly placid, his features rousled as in tealth; but it will be noticed that the eyelids close imperfectly, and that the respirations are very irregular and disturbed by deep sight and long james. On raising the crelids with the tinger the pupils are seen to be widely diluted, they act singuishly or not at all, and are often upequal in size. There may be nystagmus or a distinct squint.

When the come becomes complete, the flush insually subsidia and the face becomes very pale. The insensibility is not, however, always purfound. Often it cause in degree, and the child may seem to wake up for a time and look round with some intelligence in his gluine. Still it is difficult to say whether at these times he is always conscious. In one cases the stuper clears off completely for some hours, and the child may sit up, apparently infinitely improved, and again show some interest in his tors. These cases are very distressing in their effect upon the relatives who had given up the child as hopeless, but now conclude that all datager has passed. Unfortunately, if the eyes be commised, it will be found that the pupils continue sluggish, dilated, and unsequal in size; the squart if it had been present, still persists, and little hope can be entertained that the suprovement will be lasting. After a short interval to the infinite grid of the brinchs, the come returns as prefoundly as before, and then one-

times until the close.

Increase in the come is usually associated with efficient into the waterieles. If confliction of the crunial bones is still incomplete, the featurelle, when the efficient occurs, generally becomes elevated and beautiful, it is important to be aware that a large officion in the scattacles is quite computable with a level or even a depressed featurelle.

Consulere movements generally come on early in this stage. They are often partial, and may be confined to twitchings on one side of the face or in one arm. Often, however, they are general and more seven. Between the seizures the joints are often stiff, and parallesis is more or how distinctly marked. Squinting of one or both eyes is solden about and there is frequently process, but general parallesis of the face is rawly seen.

Loss of power in the limbs usually assumes the form of hemitegia. The arm is constimes affected alone, but the paralysis is said never to be confined to one log. At the end of this stage, when the come is extended, the head often becomes retracted upon the shoulders, and the totic rigidity may affect the whole spine; the joints are stiff; there is more it loss complete paralysis of one side; the pupils are dilated and usequal; there is equint of one or both eyes; the systellis often conflicts; and treases and twitchings may be poticed in the muscles of the face and limbs. Before death the pulse usually becomes very mpid; the constigation is replaced by discrime; aphthe appear upon the mouth; the refracted ablonus swells out again with gaseous distention; ophthalms may occur, and the corner often obserates; there is generally profuse seeming, and scate ostema course in the burgs. On the last day the temperature may full to a subnormal last or may rise very high, and sometimes it reaches a surprising electric. Thus, in a little girl five years of age, the temperature on the morning before her death was 97.6°; but from that point it uses progressively through the day and might, until at 7.45 a.m. on the following morning, the time at which she died, it was 110°, and two hours after her death had only sunk to 107°.

The average duration of the illness, counting from the first day of venifting, is turcles days. It may, however, sun a shorter course, and sematimes comes to an end on the sixth or seventh day. In other cases it lasts over a longer period, but is saliken projected beyond the end of the

third week

The sequence of the phenomena, as given in the preceding description, is that ordinarily met with in case of the primary form of the discuss, but there are occusional variations in the asymptoms which it is impertast to be sware of. Thus, in exceptional cases the illness begins with diarrhon, and I have known the losseness to percent, with scensional intermissions, throughout the course of the attack, although no afceration was present in the bowds. Youiting also may be a fer from prominent symptom. Sometimes it is quite absent; at other times the claid vonits once or twice, and not afterwards. Again, the pulse may be slow from the beginning, or, on the contrary, may be rapid at the most and never afterwards fall in frequency. Still, as a general rule, repeated observations will usually detect a slow pulse at some period of the illness, even if it only last a few hours. It is alsoon important in ascertaining the state of the pulse to do so at a time when the child is perfectly noticuless. The healache, too, rance greatly in severity. It may be excusively severe or comparatively slight. The intolerance of light is also a variable symptom. Sometimes it is extreme. In other cases the child can bear the light with-out apparent disconfect. Lastly, the temperature is not always high. It mry he little raised above the normal level, and in most cases the pyresia leasens at the loginning of the second stage. Indeed, at this period the reduction in the force, together with the diminished fretfulness of the patient as he becomes more stopid and drowey, may excite in the minds of the friends false hopes of improvement. It is generally the own time the fover is higher in the third stage than at an earlier period. If it rise to a high level in this stage it is a sign of approaching death.

In secondary subcreasing examination the earlier symptoms of the special lesion are masked by the more general phenomena indicative of the suffering of the whole system from the tubercruhe cacheria. This form of the disease is the slape the affection invariably takes in indicate, and it is not uncommon in other children. In these cases naturation is always greatly interfered with. The child is thin, neakly, and massade-looking. He is more or less fercerish, although, unless enterthal produced be present, the temperature rarely exceeds 1911; has no appetite; often vomite; and appears to be gradually wasting away. Suchemby he is senied with a fit of commissions. This is followed by partial paralysis which involves some of the correlations, notably the occulo-motor; dilated, singgish, and often unequal pupils; rigidity of joints, and stoper. In this state is lingers a few days; the conventions are repeated; the pube is small and rapid; the breathing is irregular; the abdomen is retracted, and the child day without any return of consciousness. After death the gray granulation is discovered widely distributed throughout the internal organs, and the Image as well as the coreland membrages are usually the seat of inflammation.

The concessions are often very partial in those cases, and may comic merely of tonic spaces affecting one or more limbs, with squint or conjugated deviation of the eyes. Scenetimes, also, there are slight clonic spaces or faint fractors, undateral or limited to one limb. The outbreak of the head symptoms is often preceded by sighing or irregular breathing faitened abdominal purieties, and slight twitches in the leads; but the slee intermittent pulse, which is such a valuable sign in the diagnosis of the primary form, is usually absent. Often, before the notical onset nothing at all is noticed to give rise to suspicious of intercential mischief, although see knowledge that is every case of acute general tuberculosis affecting a very young child such symptoms are likely to occur should lead us to with the them very mirrowly.

In infants the affection, when secondary, almost invariably mounts this form, and death usually follows within a few days of the occurrence of the head symptoms. In other children the course of the accordary form is somewhat longer, and, indeed, the symptoms in some cases may approach nearly to the type observed when the discuse is primary. Still, there are in most cases many differences. Delinium alternating with stoper, without convulsions, squanting, or other form of paralysis, may be the only sign that the meninges are affected. Sometimes there is repeated vending with some wandering of mind and intellectual aluggishness, so that the child seems not to understand questions addressed to him, and when tall to put out his tongue makes no effort to obey. The disease may ever reach its termination without any more positive signs of intracranial lesion being noticed. Indeed, in these cases the variations in the symptoms are infinite; but if the existence of general imberralous has been ascertained. we shall be at no loss to explain the menning of any new symptoms which may arise from the head at this late period of the illness.

Many anomalous cases of secondary tabereriar maninglis occur is children suffering from cerebral taberels. This is a chronic disease which continues often for months, and is accompanied by more or less series symptoms pointing to the brain. Fever is muchly present, and solvess and headache, which are characteristic symptoms at the onset of the noningitis, are also common in the brain tumous. Consequently the recurrence of these familiar phenomena is often attributed to the growth, and is seldon interpreted as indicating a new phase of the illness. In such case the early period of the accumingitis passes annoticed, and the complication is soldon recognised before the more violent symptoms which are classes

teristic of its third stage are actually present.

Proposes.—It is not always easy at the beginning of an attack of taker cular menagetis to speak positively as to the nature of the alness. The first symptoms are often said and apparently traffing, and if, nimperhending their importance, we make light of what eventually proves to be a futal discuss, the mistake is one which will be certainly remembered from disadvantage. Vocating and constitution, especially if majored with

¹ It is well in all cours, even of apparently britting fabrils demogratial coursing in defiliers of known telescottin benderates, to warn the parents that although the coappears to be at present one of trifling importance, even such casual disturbance are local occurrently to account the document tendency to mischief and to be suiteted by very review consequences.

bealache, form a very suspicious combination, and if these occur in a delicate child or succeed to a period, however short, of general failure of health, we should view them with serious apprehension. If our suspicious are well founded, symptoms soon appear to give them confirmation. The pulse becomes slow and intermittent, the breathing is irregular, the child gets stupid and drowsy, the pupils dilate and are aluggish, and there may be a slight squint. When this stage of the disease is reached there is little room for hesitation. It is principally in cases where the illness carses from the normal type that the beginning of the disease gives rise to incortainty. Vorating may be absent. Instead of constipation there may be besseness of the bowels. But still, if the child is fewerish, complains of headache, and has a pinched, distressed expression—if with even trifling symptoms he looks really ill, we should never speak alightingly of his condition.

Tubercular maningitis almost invariably begins insoliously, and the remptons have a regular progression. It is solden ushered in by a convalue fit, and if such a seizure occur at the beginning, it is rarely repeated. Slighter signs of nervous disturbance may, however, he generally discovered by careful observation and inquiry. The child will be found to have lately changed in character. From an oven-tempered phonhis boy, he has become suddenly irritable and spitcful; if naturally headstrong and independent, he turns strangely timid and affectionate, and is moved to tears by a kind word. Often he grows curiously silent and unwilling to play or even to speak. Again, he may be noticed to from often end would the light. He flushes frequently, sighs deeply, and complains of herdache and giddiness. All these small details assume great value if combined with feverishness vomiting and a look of care. Drowsiness is on early symptom, and when succeeding to the above is very suspicious. At the same time the breathing generally becomes unequal, with long panies and deep sighs, and this, itself an important symptom becomes of double value when associated with others pointing in the some direction. If now the pulse falls in frequency and is intermittent, without improvemont in other symptoms, the evidence it supplies may be considered conclimins.

The early period of tubercular meningitis may be mistaken for any of the other lesions or derangements which are accompanied by loss of ficali.

voniting, headachs, and signs of nervous excitement.

The condition called sparious hydrocephalus, which sometimes occurs in existanted infants as a result of aniemia of the brain, with alugrish cerebral circulation, and is sometimes a sign of thrombous of the crumid singues, is usually readily distinguished by the history of severe vomiting te diarrhou, the evident exhaustion of the child, the depressed fontanelle. such the parmal or even subnormal temperature. This condition is selden seen after the first year of life, and therefore is more likely to be mistaken for a general tuberculosis with accordary meningitis than for the primary form of the disease. Sometimes older children after an attack of serious are to discuss may be left in a state of profound malnutrition, in which all lead excites comiting, and the stomach seems inequable of retaining or digesting even the simplest articles of chet. The child is restless and fretfol, and complains of hendache. His skin ceases entirely to act, is dry and rough, and the hardened spithelial scales can be brushed off as a fine dost. His lips are dry and eracked, his bowels confined, and his urine scanty and high coloured. After a time the child becomes drower and sinks into a stupor in which he dies. In these cases the brain and the internal organs generally are bloodless and wasted. A distinction from meringin my usually be made by the low temperature, which even in the action is often no higher than 97°; the history of the case, the absence of setnetion of the belly, and the course of the almost, which has not the regular

progression peculiar to the inhercular disease.

An acute catarrial condition of the stomach in a serofulous child some times presents symptoms—forestakess, romating, bendache, and contigution—which may be mistaken for the cused of tubercalar meningitis, moespecially as, when convalencence begins, the pulse often gets also all intermittent. But in all decongenents, as distinguished from grave fiscases, there is an important distinguishing mark, viz., that the patient dose not look seriously ill. If he be not profoundly depressed by the screiny of the symptoms, or harmond with pain, his face in placial and shows a signs of distress. Moreover, his breathing is regular, and his abdomanormal in appearance and not retracted. If, later, the pulse becomes the and intermittent, the sheltening coincides with an improvement in the symptoms and not with an unfavourable change in the condition of the patient.

Still, even a child suffering from tobercular meningitis has not always a hargand, convecen book. Some time ago I saw, with Dr. Miller, of Blubbouth, a little boy, four years old, who had been noticed to be getting this and pale for six weeks. He was often found asleep on the floor in the middle of his play. He flooked up at times and was very feetful erging

without come.

On November 18th he began to vemit, and the sickness command all through the week. It occurred usually about an hour after field, and second generally to be induced by movement. The bowels were contact, but acted readily after sperients. The temperature at night was about 100°.

When I are the shild, on November 25th, he was lying in bed, with a slight flesh on his checks. His pulse was at first 199, and require; afterwards 89, and slightly intermittent; requiretions, 26, and somewhat inequality, for the child occasionally heaved a deep sigh, although his breathing was never quite irrested. Temperature (at 3 s.m.) 98.4°; eyes bright; no squint; pupils normal, and acted prefectly; no photophobia; no ordered flush; consciousness perfect, and the boy inservered questions readily. He said that his beast sometimes ached at the back. Tongue furred, while; metions, after specients, of normal appearance and contained no areas at worse. The body was steeply hollowed, and the parietes were mi, dengly, and compressible; the liver and spleen were of normal site, and the physical signs of his heart and lungs were healthy. There was no absumen in his prime.

In this case which was seen on the seventh day of the discuss, the preeral milliness of the symptoms, especially the slightness of the healths and the complete clearness of mind of the child at so long a period after the beginning of his filters, seemed to tell against tubercular maning/81 but the history of the case, the pulse, the sighing breathing, the deply excavated abdorses, the absence of sufficient signs of digestive decaugement to account for his state, and the want of elevation in the temperature, which excluded a continued force—all these symptoms taken together pointed very strongly in favour of the tubercular disease; indeed in a few days the child became countose, and he died shortly afterwards.

"Cerebral pacumonia" may be accompanied by symptoms which resemble tolervalar merangitie; and as the physical signs of the cleat my be normal on the first examination, it is often difficult at once to distinguish the real nature of the disease. There is often delarious and stupor, vertigo may be a prominent symptom; and the pulse, although rapid, a intermittent. In such a case the history, the absence of producement, the persected pulse-respiration ratio, the greater elevation of temperature, and the sarly occurrence of the head symptoms are not in factor of tubercular maningstic; but until signs of consolidation are discovered we cannot ven-

ture positively to exclude nomingeal tubercle,

In special corebral disease the course is usually very different from
that of tubercular meningitis, as the illness almost invariably begins with
sidest nervous symptoms. The pirenitic form of simple maningitis of the
correctly approaches most nearly to tubercular basic managetis in its atturbant planomena; but here the early symptoms are far more severe
than in an ordinary case of the tubercular variety. The disease breaks out
sufferly with violent headsche, almost immediately followed by lond,
often fumous deliman; the temperature is very high from the first; stapos
quickly supervenes, and the whole course of the disease is rapid.

In the secondary form of the tubercular disease the carliest sign of the occurrence of the cerebral complication is usually consiting, and this symptom should never be disregarded. Often, however, the intra-cranial inflammation may first reveal steelf by a fit of convolvious or a squint. In a clabb who, after a puno l of wasting and general illness, but an attack of catarrial pneumonia in which he is suddenly taken with a convolver seizure, the presence of a secondary taker convolve soiz-

suspected.

A basic meningitis is sometimes seen in infants as a consequence of inherited syphilis. The symptoms are identical with those of the telegrahar from ; but the nature of the illness may be sometimes infected from the superstance of the child and the presence of other signs of the congenital

multily.

Cases are sometimes seen in which a child dies with all the signs of a tubercriter meningitie, although after death no appearance of intracranial inflammation or excitation can be discovered, not can the closed examination detect any gray granulations either in the shall excity or at any other part of the body. Such cases occur now and then in most children's hospitals. I have seen one or two; and as far as I know the form of tubercular neulingitis thus simulated in always the accordary form; as, the expectal symptoms do not miss sublends in an appearantly healthy child, but come on towards the close of a more or less prolonged febrile situals.

Proposes —Tubercular inflammation of the cerebral maningus is an mortal a discuss that when the nature of the case is established beyond a doubt, a faul termination is inevitable. The discuss is said to have been sometimes arrested before the account stage had been reached. In such a case it is reasonable to doubt the accuracy of the diagnosis. Probably tanty of the cases in which recovery from a basic meaningthis has been recorded have been instances of the apphilitic form of the intracranial

refluentation, which is much more amenable to frealment.

Toutural.—The discose is so fatal when once established that special presentions should be taken in every case where we have acceptained the existence of the tubercular disthesis to prevent the development of the eacheria, and word off-sil influences tending to promote irritation and compution of the brain. For the general means to be adopted to streagthen the constitution and weaken the disthictic tendency the reader is referred to the chapter on tuberculosis. With regard to special measures, we should be careful to feebid the more exciting amusements and too boings ous games. The mind of the child should not be overtaxed with protracted study, and care should be taken that his intervals of relaxation are frequent

and regular.

When the disease is actually established, we can have little hope that any treatment we can adopt will succeed in checking the course of the illness. The violent measures which it was at one time thought necessary to employ in cases of tubercular meningitis have been found to be not only useless but actually hurtful. Few judicious practitioners would are thick of applying leaches, of blisbering the skin, of running a setor into the neck, or of rubbing tartar emetic ointment into the shares scalp. If the case be seen early, perfect quiet in a room earefully shaded from the light should be enforced; ice-bury should be applied to the bend and the fact should be kept worm. The bowels must be relieved by a dose of rule rael and julipine, or compound seammony possiler, and in the loge that the discuss may have a syphilitic origin, the perchloride of mercury, in flows of fifteen to thirty drops, can be given two or three times a slay. The ciril should be supplied with liquid food in sufficient quantities; and if he is fuse to suallow, he must be fed through an electic entheter passed down the gullet. Stimulants must be given as seems necessary.

CHAPTER XV.

PARALYSIS OF THE POUTSO DURA.

Figure paralesis from affection of the portio dura of the severals nerve any be a mild or severe complaint according to the same on which the punitysis depends. It is common enough in children, and in them is fre-

quently a sign of severy and perlups incurable disease.

It will be remembered that the faced nerve rises in the floor of the fourth ventracle from a nucleus common to it and the sixth nerve. Thence it process substances with the auditory nerve, enters the internal auditory needs, and as conveyed by the Fallopian aquesiset to its formers of cust from the shull. It is important to bear in mind the principal branches given off by the nerve in the Fallopian canal, as the seat of the lesion is determined by the extent and distribution of the paralysis. Shortly after entering the aquestort, the facial nerve is joined by the large superficial petrosal branch of the Vidim nerve. It is by this channel that it corners nerveus influence to the selam; for the Vidim nerve is united with Mecked's gaugilou, from which branches descend to supply the muscles of the units and soft points. Soon afterwards it is joined by the small superfinal petrosal branch from the tympanic nerve; and a little faither on it gives off the chords tympani, which joins the gustatory boards of the fifth nerve, and is distributed to the tongue.

Critation.—The function of the facial nerve may be interfered with by a lesion at any part of its course, from its origin in the face of the fourth vestricle to its periphery. The cause of the paralesis may therefore he inside the shall cavity, in the Fallopian aquedact, or outside the temperal

burn.

Inside the shull the nerve may be injured by extraoration of blood or be compressed by furnours, inflammatory thickenings of the dura mater, and by exulations. In the Fallopian canal the nerve may be damaged by fracture at the base of the skull, or be destroyed by caries of the petrous lone. After leaving the temporal lone the nerve may be injured by the forceps shring delivery; or by blows upon the face; or by inflammation at up in its sheath by extension from neighbouring parts, as in parotiditis; or by an impression of cold, causing abcamatic inflammation of the sheath of the nerve.

The two chief causes which give rise to this condition in children are, to doubt, carriers disease of the petrous bear, and exposure of the face to a current of cold air. Of these the first is a very serious disease, the sec-

etal a comparatively triffing one.

[&]quot;According to ment instrument the shoots typical is derived from the nervo of Welstern, and not from the facial. It is implemely removed with the fragual breach of the first, and the sense of tasts in the anterior two-thirds of the trugue is dependent emirely upon the shorts typical, the fragual providing over greens sensibility only.

Carses of the petrons part of the lemporal bode is a commer comquency of neglected others in the child. According to Von Treitsch, it is far from uncommen to find the masterid cells, with the tympuric carry, and the Eustachian tube the sent of suppurative cotarch in a shall she had lived and died without the discuss having been suspected. This condition may exist without external discharge, without pairs, or any symptom by which its presence may be rereaded (see Otilia).

In children under three years of age facial pandysis is not rare. At this time of life it is due almost invariably to otitis and caries of bons, uph supparation in the sheath of the nerve. Other children may selfer from paralysis arising from the same cause, but in them there is increasing unit-

ability that the loss of power is the consequence of a rhol.

Suppress. The first empton usually noticed for the mother is that the child's mouth is shown to one side when he laught, or eries. On ourful inspection it will be found that the absence of movement insulves the whole side of the face. While the features are at rest, the eye on the atfeeted side is incompletely closed; the nestril is flattened; the sheek may hong a little, although this is not easy to detect in babbes; and the angle of the mouth is slightly lowered. It is when the child erres that the gual difference between the two sides as men. Then, on the lendily side the systron contracts; the forehead wrinkles; the eye closes: the als of the tone and the mouth are drawn upwards; and the middle line of the lips is pulled far out of the centre of the face. On the affected sole, on the resfrare, the muscles are meticuless; the eye is open; and the skin remins smooth. If the nerve is affected in the Fallopian canal, the paralysis at feets the soft pilate. On looking into the throat, it will be seen that in the sale of the lesion the arch of the pulate is flattened, and that the reals is curved to the sound side; for the motor fibres which pure through the large superficial petronal nerve and the Vidian nerve to Mackel's ganglion, from which the politime branches precised, contract the avygor under only on the sound side. For the same reason children may complain that ther mouth is dry and their taste impaired—the choula tyropusi, which excluthe popular of the tongue and promotes secretion of sales, no longer evevering the nervers influence. Sensibility is not affected, but bakes often seem to have a difficulty in swallowing their food; and if there should be loss of power on one side of the soft polate, some of the milt may be so-casionally returned through the mose. An older child complains of grad inconvenience from food collecting between the grass and the deck through the action of the baccinstor being paralysed. He can be kept whistle, and even his speech may be impaired. The half-open eye in qu to become inflamed from exposure; and there may be a flow of team you the eleck as a consequence, according to Duchenno, of puralysis of the tensor tarsi muselo, which no longer retains the pentits in its record potion.

The symptoms which are produced by a begin affecting the facial term

in the Fallopian aquednot are well seen in the following case:

A little girl ayed sixteen months, was admitted into the East Leader Children's Hospital on March 24th. The motion stated that the child had been always bealthy until two weeks previously, when she had begun to be feverish and to be irritable and thirsty. For the same time she had been losing fiesh and had lead some cough. The day before, white sitting type her mother's arms, the child had enddenly faillen backwards in a further condition, and had scenned to lose consciousness. It was then noticed that her face was drawn to the right. On admission there was found complete

paralysis of the left side of the face, and the left eye closed increapletely. The usula was small and showed no distortion. A discharge escaped from the left car, but the mother could not say how long this had been going on. On examination of the chest there was impaired resonance at said apex, and the breathing was high-pitched and broachind, with a large bubbling rhonding. Over both sides of the chest dry and moist rides were laured. During the first fortnight of the child's residence in the hospital her temperature varied between 20° and 100°. She took har foot tarry well, but seemed to swallow with difficulty, and occasionally further strapes of through the nose. The paralyses of the face continued, and the left eye became red and congested. The otorrhon improved; but the child's temperature became higher, and cose to 104.5° in the overlang. Then the left corner sloughed, and the patient died suddenly on April 19th.

After death both lungs were found studded over with small cheery masses. On examination of the left our the tympanic membrane was destroyed; the obsoles were carious and broken down; the tympanium and minimal cells were filled with pas; the wall of the tympanium was carious, and a probe could be passed though it in the direction of the Pallopian canal. There was no influencetion of the brain or its numbranes. The

cranial singues were not exemined.

The occurrence of the paralysis is not always attended with synotoms of shock, as in the above instance. Usually it is only discovered accidentally by noticing a deviation in the shod's face when it crics. The aloughing of the corner in the case narrated was due to implication of the

sensory immed of the fifth nerve.

Is the parts supplied by the purelysed facial nerve the loss of power is smally complete; and if the lesion affect the acree after its passage through the internal mulitary mentus—that is to say, if the facial nerve sail so other he implicated, the motion of the tongue is minimpared, the muscles of inschedules at well, and there is no less of power in the levator pulpeters or the numeles of the sychall. In all but the midded forms the paralysed muscles seen less their irritability, and cause to respond to the

electric current. When the paralysis is due to caries of the petrous hose there is usually discharge from the mentus of a very offensive kind, and more or less impairment of hearing. When the cause of the loss of power is inside the skull earlity, we get signs indicating the involvement of other nerves. There is squinting, or designess, or amosthesia, and beniplegia may be pres-184 Occasionally it happens that paralysis of the sensory brench of the fifth perso accompanies the facial paraless. If this nerve be affected at a point anterior to the Gasserian ganghon, where it lies on the petrous part of the temporal tome them result loss of separatrity of that side of the face, of the conjunction, and of the anterior portion of the tongue, also, inflammation of the conjunctiva, and alceration of the comm. If the nerve be affected at a point posterior to the Gasserian ganglion, inflammation and alceration of the corner do not follow, although the sensibility of the face is still affected. If the portin dura be diseased at its origin in the Eucleus common to it and the sixth nerve, internal strabismus from paralysis of the external rectus manule of the eyeball will accompany the facial polar.

Diagnosis and Programs.—If the purples is noticed directly after birth in a child who has been delivered with instruments, the case of the infirmity is evident and the progness most freezenthe. In other hobies and roung children it is very important to discover the seat of the lesion. If it is the to carries of bone, and the nerve is consequently affected in the Fal-

loping conal, there is an offensive discharge from the suditory mentas, and the sense of hearing is more or less blusted. Perlups, also we can detect a certain degree of flattening of the pulstal arch on the affected side, with a little twisting of the uvula, but this sign in children whose uvula is small is often absent. The existence of impairment or percersion of the some of tasts is also impossible to ascertain in young clinkless. In them and standing of orribora, or even a recent offeners disclarate from the most acombined with facial paralysis, affords empieson of the strongest kind that the facial perve is affected in the Fallepian aquednet. The pregnoss in these cases is very unfavoumble. In fact, death usually occurs somer or later from extension of the inflammation to the dam mater and the brain The form of facial pulsy which is found in children under the age of three years is commonly due to this cause. In an obler child, if the purifour has not been preceded by any impairment of the sense of hearing or by storrhow; if his sense of trate is matural, his mouth posfeetly moist, and his uvula straight, we may conclude that the nerve is affected in the third part of its course. If, as usually happens in such cases, there is history of exposure to cold or of some slight injury to the face, the progressio is invocable although recovery may take some time.

Treatment. Facial pulsy from pressure of the forceps during delivery soon disappears, and little treatment is required beyond frequent frictions to the face. Purplysis from cold should be treated by steady frictions with stimulating liminouts, and the affected side of the face should be empped up in cotton wood. Electricity is useful. Dr. Duchenne's plus was to employ first the constant current with frequent intermissions, and as the irritability of the muscles returned, to make the intermissions less frequent and the sittings shorter. He never used fundism until several weeks last clapsed after the beginning of the paralysis, although at the later stage is allowed its value. Under the use of those measures the tenirity of the muscles returns, and the face regains its symmetry some weeks before

voluntary power is restored.

Beaches electricity and passive exercise, Dr. W. A. Hammond recommends the early employment of strycimin in sufficient closes to being the patient under the full influence of the drug. He also insists upon the importance of supporting the affected side of the face by means of a little book placed in the angle of the mouth and fusioned to the car. Estimachanical supports of this kind, which depend for their usefulness upon the intelligent co-operation of the patient, are not well suited to young children.

In cases where the palsy is due to discuss of hope, little can be done in the way of treatment. Our efforts must be then directed entirely to

the cure of the otitis.

CHAPTER XVI.

ACUTE INFANTILE SPINAL PARALYSIS.

Access infantile spiral paralysis, or scute anterior polic-movelitie is not, as was formerly supposed a disease peculiar to childhoot. It is now known to occur also in adults although in them much some rarely than in younger persons. This lesion constitutes the ordinary form of paralytic affection to which children are liable. It nearly also as begins in tallyhood—during the time of the first dentition—but often last-long after the first teeth lare been completed, and indeed may render the child a crupple for life.

The discuss is never a fatal one in itself, but if death occur from other causes in a clold so paralysed, so asked-eye changes in the spiral cord can be discovered. Consequently the nature of the lesion was long doubtful, and has only recently been chickeds. Now, however, owing to the researches of MM Charcot, Joffrey, Boyer, Damaschino, and others, the loss of power has been shown to be due principly to an inflammation aftering the gray matter of the anterior communof the spinal cord, causing strophy and disappearance of the large multipolar gaughton cells in that situation. The reader may be reminded that these large gaughton cells are believed to be centres of reflex artism and transmitters of supulses received through the spinal tracts. They therefore influence the movements of areache. Besides this, they are probably trophic centres and regulate the nutrition of tissues. Consequently the disappearance of these cells is followed by impairment or even abolition of reflex and voluntary action in the parts with which they are in communication, and also by impaired nutrition

in muscles, tendons, bones, and joints.

Countries .- As the disease is mainly limited to the period of the first dentition, cutting of the teeth has been supposed to be a come of the myelitie; but if this he the case it is probably so only indirectly. An induct fererish from teething is in a high state of nervous irritability. His digestion is impaired, and his pyrexia replets him exceptionally sensitive to chill and other causes of inflammatory and outsithal disorder. For this reason pulmonary and intestinal derangements are common at this period. But these ailments cannot be said strictly to be crossed by dentition, except in the sense that the process of teething, by making the child Everish, heightens his susceptibility to ardinary injurious influences. also, in the case of this disease, an infant, when feverish, is more likely to be affected by causes which produce the myelitis than he would be at another time when his temperature is normal, his direction good, and his servous system undisturbed. What these cours may be is doubtful. The infammation is often attributed to chills, and there is no doubt that the season of the year has a distinct influence in inducing the attacks. Drs. Wharton Sinkler, of Philadelphia, and Barlow, of Manchester, have made inquiries into this matter. Out of one hundred and forty-nine cases collected by the former physician no less then severly-seven occurred in the months te July and August. In Dr. Berlow's one handred and eleven cases fortyright occurred during the same months. Now July and August, although the brittest menths in the year, are also those in which alternations of temperature are most rapid and unexpected, and in which, therefore, solden childs are very likely to be incurred. If the child at the time of the damps is depressed and exhausted by previous intense heat—as he is upt to be in a tropical climate—the solden lowering of the temperature is the mostarely to predice an injurious effect. The disease sometimes occurs after typhoid fever: Dr. Bezzard has known it to come on after mendes, and the paralytic attack appeared in a patient of my own—a little girl of two and a half years old—during convalencemen from an obstimate chronic disertion. Both sense appear to be subject to it in an expend degree; and, apparently, robust health is no protection from its attacks, for it as often affects a constitutionally healthy child as a eachectic and weakly one.

Market Anatomy.—The lexical is limited to the spinal coul, the bean being anaffected. An inflammatory process attacks the anterior corner and produces certain changes in the gray matter itself, in the rocks of the nerves which take their origin is this situation, and in the muscles, tendous,

bones, and joints to which they are distributed.

In the gray matter the changes are not approcable by the rakel eye except that in old standing cases a certain diminution in bulk, with increase consistence of the affected parts, can be sometimes detected. By earth microscopic examination, however, the changes can be distinctly recognized.

The inflammatory process is diffused through the gray matter family the susterior home; but is more intense at certain points, notable the cerviral and lumbur enlargements. As a consequence, areas of softman can be seen, more or less sharply defined, scated towards the front of one or both surnus. In these areas the tissue is noft and frields, the bloodvessels are faller than natural, and numerous granulation cells are seen with an increase in the amount of connective tissue. The most strains change consists, however, in the fact that the large ganglion cells here shoot completely disappeared, and the few which are left are greatly stropked and dependent. The nerve filmes and axis cylinders are also destroyed, and the anterior roots are degenerated and wasted. As a commonwed these changes the interior horns look small and shrunken at the spate where these diseased for are situated. Although the diseased process is that concentrated in certain patches, the gray substance generally is not one pletely healthy. Throughout the whole domal portion of the cord the gray matter is often more or less affected. Granulation cells may be sen to be weathered through the tissue; the nuclei are multiplied; the bloodvessels are dilated and ganglion cells here and there have disappeared.

The above charges constitute the first stage—that of active inflamentation. As the neute process subsides improvement takes place is part where the gray matter has not undergone entire destruction. But in other regions, where the disintegrating process has been complete butter charges ensure. These consist in a more extreme conting and shrinking of the auterior boson, so that the diminution in bulk becomes viable to the auterior boson, so that the diminution in bulk becomes viable to the auterior boson, so that the diminution in bulk becomes viable to the auterior bosons. In the affected areas there is complete destruction of all across filters and gauginous cells. Even if a few are left, they are degree steel and shrivelled. The area becomes filled with a fine filteral consecute teams, right in nucleo, and the ideodoweach are hypertrophied. But the asterior white rolumns become more or loss degenrated. Their acturoglia is thickened, their nerve filters are atrophied, and the decimpment of the columns in returbed, so that they lock small and name. Thus is, however, probably a secondary affection, and is not necessary for

the complete development of the symptoms. Stated briefly, the boson which constitutes infuntile paralysis may be mid to be an acute myelitis. of the anterior gray commit, leading to circumscribed patches of scherois with complete destruction of the large ganglion cells and other necescieracuts.

The changes which have been described supply an explanation of the peculiar phenomena observed in the disease. The striking limitation of the purelysis to certain muscles, or groups of muscles, and the complete immunity of others, is due to the concentration of the leaker into certain circumscribed areas; while the early resolution of the inflammation in the larger portion of the tissue attacked accounts for the disappearance of the first severe symptoms, and the restitution of power in many of the muscles

primarily affected.

The puralysed muscles also undergo atrophy and degeneration. They become at first paler and softer, then grayah or realists vellow, with bonds of connective tissue, and yellow lines or streaks of fatty tissue. The microscope shows at different stages the fibres wasted, and their striction in linfirst, with hyperplasin of the cells of the survolences; then the fibers cloudy with numerous fat molecules; finally, almost complete absence of musesiar fibre. The normal structure is often replaced by an increased formation of connective tissue, so that what was once a muscle becomes a mere fibeous bundle; in other cases we find substitution of the normal mescalar substance by school tissue, and by this means the original rolane of the muscle may be actually increased.

Fatty degeneration is not an invariable consequence of the muscular pumlysis. Even when it occurs, it is often not universal, and processla-

anch faster in some bundles of fibres than in others.

The bones as well as the muscles become wasted. Their development

and growth are returded, and their density diminished.

Symptoms, -The attack is sudden, and the paralysis reaches its height at ence, both in distribution and degree. In many cases the child exhibits to symptoms of illness. He goes to hed to all appearance perfectly well. In the morning one or more of his limbs is found to long foundy and to be motionless, otherwise he shows no sign of ill health. In quite young babies, who summed walk, the loss of power may remain unnoticed for several days. In a second class of cases the symptoms are a little more marked. A child who has been put to bed in his usual health is second in the night with fever. He cries and is very restless. In the morning more or less extensive paralysis is discovered. In a third close of cases the child is feverish and poorly for several days before the purelysis occurs, sometimes he is delirious, or he may have an attack of convulsions followed by stuper. In all cases, probably even in these where the symptoms are the lend accentrated, there is some preliminary fever, but this may last only a few hours, and is often unnoticed by the attendants.

The paralysis is complete. It may be widely distributed, or may be limited to one muscle or a group of muscles. It may affect all four limbs; it may attack only the lower extremities; it may assume the hemiplegic form and fix more the arm and leg of one side; or, sgain, it may settle upon our limbouly-in such a case the right foot as said to be the part most frequently selected. In this form of paralysis the face and parts sup-

With regard to the absence of puralysis of the face it is right to my that Dr. Butand his recorded a case which appears in he one of unicoulted infantile paralysis in which tarial paralysis was noted. Dr. Describ stellaries that exceptional photo-record to an extension appeared; of the tellmenustary process into the medallic obluques. He

plied by servinal serves are never affected, the intelligence, after the first scaret, is never inquired, and control over the rectum and histolice, at my rate after the first few days, is never last. Sensibility in the paralysed parts remains in every way normal; there is no pain anywhere; no mak upon the skin; no tendency to the formation of sures or slowchs upon parts exposed to pressure; no ragidity of the joints. The affected limb is perfectly flaced and pandess, but also perfectly motionless. In some one cases the onset of the discuse has been said to be attended by pains in the back and limbs, and by hypercosthesis of the skin; but these placements are not directly the consequence of the spend lesion, and form no necessary part of the group of symptoms which are held to be characteristic of

infantile paralyses. The flaces lity of the paralysed messeles is accompanied by a loss of refex phenomens and a dimination or complete disappearance of the norseal contractility. This takes place early in certain nameles, so that in the course of a few days they may be found to respond faintly or not at all to finalis stimulation. While, however, the nausdes have exact to renot to the strong fundic current, they will still respond to slow interruptions of the constant current. When contractions are obtained by this mounts in a muscle which has lost all faradic contractility the piscuousnon is called "reaction of degeneration." It implies that the provietor the time in physiologically cut off from the influence of the spiral and Beades this, early signs are noticed that the nutrition of the limb is no longer efficiently mentained. The part is cold and often looks purplet the pulse is smaller; the fit becomes absorbed; the messics waste; the ligaments of the joints are released and there is even a shekening of growth in the bone. These trophic changes are usually murked and generally continue after apparent restoration of power in the affected limb.

The paralysis is at first complete and much more extensive than it afterwards becomes. After some weeks, or perhaps months, a partial recovery takes place in the muscles whose familie contractility had not been entirely destroyed. Sometimes this restitution of motor power is perfect, and, except for the impaired nutrition in the affected limb, the child may seem to be well. More usually, however, certain muscles, or groups of numerics, still continue disabled; and when the paralysis has thus immeditself, the parts which remain crappled are in most cases permanently useless.

When the paralysis is at first extensive, there appears to be no definite rule as to the parts which are afterwards to recover their power. It as area and a leg are both affected, the one limb does not necessarily recover scourt or more completely than the other. The only indication is the persistence of contractility in the patient amories. Each muscle should be carefully tested by the functio current, and in three whose contractility is not destroyed we may hope for creatual recovery. Cases have been recorded—notably by Dr. Kennedy—in which the limits recovered early not completely without the discuss fearing any trace of ms passage; led it has been doubted if in such instances the lesson is the same as in those where recovery is slow and more or less imperfect.

to the on that facial paralysis recent to notion; because the acute affection invaling the built is not likely to spare the nuclei of nervos securitál to life, for if it whiched the table of the unput modden duals would be the consequence. He suggests that comof sudden or rapid doubt in young children may be sometimes due to the down that ing the modula objungate with the same publishmens with which it senally stacks in subcrite gray matter of the spand cord. In course of time changes take place in the messles which remain personneally paralysed after the general restoration of power. This stage of the disease is called the period of atrophy; for the affected mass he weste, and at the same time the slackesing of growth in the base becomes a noticeable feature in the case. This arrest of development in the effected limb has been already referred to. It is a variable phenomenon and is not always present. When it occurs, it does not appear to be proportioned to the secretary of the disease as to muscular wasting and paralysis; but may be present in a mild case, and absent, or nearly so, in a severe one. According to Volkmann, it has been seen in cases of the most transient infantile puralysis where the muscles quickly recovered their power, and strophy of special muscles was not noticed. As the growth and development of the maffected limbs proceed in the normal manner, the difference between the two sides is often very evident.

The wasting of the massles permanently purelysed sometimes begins early, and, according to Ducheane, may be explicit at the end of a mouth. As a rule the permanent purelysis is not widely diffused. It is not contain to find a whole limb shounten and nodess, although even this misfortune may occur. Usually it is a group of nucles, or some a single too, which is thus disabled; and in practice certain parts more than others are found to undergo the strophic change. In the leg the common extension of the toes, the percent longus and brevia the tilehis anticus, and sometimes the gastrochemius may become attrophied; in the thigh, parts of the triceps extensor; of the muscles attached to the apper extremity, the deltoid, the secratus magnus, and some of the muscles of the breakm.

One of the most important and characteristic results of the disease consols in the porolytic conferctions which almost invariably occur when musdes are personently disabled, and constitute ramons kinds of deformity. They are expecially common in the feet, and are the principal cause of the different forms of clabfout which develope in the right after bath. The contractions occur not in the paralysed muscles, as a rule, but in those which still retain their contractile power. They begin early, and tend to increase as time goes on. This contraction of smaffected remotes, or of muscles only partially affected, was attributed formerly to the influence of the so called "muscular tonus." It was supposed that a constant stimulus proceeded from the spiral rord, and kept all healthy muscles in a state of persistent slight contraction. In the normal condition, it was said, opposile muscles neutralise each other; but if the neusrles become paralysed on one side, so that the contracting power on that side is abolished, the limb is drawn to the affected side by the action of the "tonus" in the maffected This theory was combated by Werner, who maintained that the contraction could be explained without recourse to the imaginary torus. He asserted that when one set of muscles is paralysed, there is no deformity matil the opposite set of muscles is put into action. The limb is then firms to that sale and cannot be replaced by the paralysed antagonistic timeles. Il therefore remains in its new position until replaced, or until tt falls back again by its own weight. Consequently, it must happen that the limb is often and long in one position, for the numcles once contracted remain so because the astagonistic muscles can no longer act. After a time they less the power to relax, and a permanent contraction becomes gradually established.

But even this theory does not secount for the whole of the faces, for, as was pointed out by C. Hoter, it is not always the messiles anatomically apposed to the paralysed groups which undergo contraction; and indeed the deviation sometimes occurs in the direction of the paralesed also The real cause of the deformation of the foot appears from the researches of Hater, Volkmann, and others, to be only partially the unopposed action of healthy muscles and inshility to antagmost their contractions. Far more important agents are the weight of the affected part itself and the greater pressure thresen upon it when in use. For instance, the conest deformity of the foot is the talipes equinovarius; but this is exactly the position in which the foot will fall when the ankle-joint is not scient upon by its nuncles. If a child be made to sit upon the edge of a table with his logs langing down, the foot instantly falls into the equino-caraposition. In paralysis of the limb, if the child has not walked, this is the form the deformed invariably takes. The foot assumes this position, and the shortened muscles in time become permanently contracted. The arnot of growth in the bone, which is generally present, promotes the kemation of this eleformity, for the affected log bring shorter than the other. the skild has to point the tors in order to reach the floor. If the paralyses occur in a child who has already learned to walk, the flat foot italizes salgust is the sweal form of distortion, and is, excording to Volkman, kysspective of the actual newcles paralysed. When the national brings his weight to bear through the log upon the sole placed flat on the ground, the feet, being no longer braced up by the pumpered number, curve outwards until objected by the liguments. By repetition of this action the bigaments stretch and the bones on the compressed side are interfered with in their growth. The talipes valgue thus formed is less perfect than the sums deformity produced by over-exercise and fatigue in a child with unpossitived muscles, for during rest the foot is brought again by grants. tion into the equino-varus position. The shortened muscles are therefore again drawn out, and their contraction is less complete, so that the joint is comparatively loose

When the nurseles of the thigh are perunnently weakened, there is no contraction about the knee unless the child attempt to aid limited by the use of crutches. Children in whose there is partial paralysis of the qualriceps features walk, says Volkmann, exactly like a person who wears in saturated leg. To get such a leg to support the weight of the body without bending the knee, the weight must be thrown in front of and not betifed the joint. Every time that the body rests upon the weakened limb, the weight is thrown forwards, so that the knee is in a state of complete extension, and the posterior ligaments are put upon the stretch. These after a time relax, and the knee is over-extended so us to produce a genu recurstion

In the arm, the ellow-joint is little affected. It remains quite free and no contractions occur unless the arm is kept personneatly in the bent position, as when wom constantly in a sling. When the puralysis is so marked that the hand is uncless, the power of supiration of the arm is now lost, for the child, having no occasion for the movement, soon causes to suplay it. The wrist becomes slightly flexed, and the fingers, completely dended upon the pulm, undergo contraction in that position. This is the position the fingers assume when left to themselves; and if the figures are not used, or are not passively stretched, they become contracted. The absorber is flattened, and if the numerical proceeding from the thorax to the arm are extremely weakened, the expanse is pulled upon by the deal weight of the arm and becomes permanently stretched, so that a distinct interval is let between the head of the bone and the accidet. In this man the affected arm, by measurement from the acromion, may seem longer than the sand

From what has gone before it will be noticed that excess of infantile spinal paralysis fall naturally into two classes: those in which complete recovery takes place in all the muscles affected, after the lapse of works or months; and those in which power is completely restored in some nuncles, while others remain permanently uscless, and the discuss ends in atrophy and deformity. In the nuncles in which the paralysis is likely to be hading, farallic contractality disappears at a very early date—assembly before the end of the first week, or in the course of the second. According to the elder Ducheuse, muscles which retain some degree of faradic contractality on the seconds or eighth day may be espected to recover their power, and this the more rapidly the less their faradic irritability has been weakened.

Diagnosis—In a case which is seen at an early period of the discuss
the symptoms are so sharacteristic that it is difficult to mistake this form
of allness for any other lesion of the narrous system. But every case of
puralysis with steep by is not a case of infantile against paralysis. To identify the discuss with accuracy we must require all the oscential phenomena of the affection, viz., complete notice paralpsis without alteration of senselsiiny or pain in the took or elsewhere; rapid loss of faralle arritability; a
nermal temperature; absence of paralysis of the farm or of the splanchers;
complete fluctility of the limb, without stiffness or contraction of the
joints; marked coldness of the affected parts, and no tendency to the formation of acres upon the skin.

In some generalised morbitis, where the whole of the gray matter is involved and a large part of the white columns, there is isseemed sutaneous sensibility; there is purelysis of the sphineters, so that the child can no longer control the blackies or the bowel; there is an increase of reflex excitability; were form readily on the parts exposed to pressure; the urine is alkaline, purelent, and offensive, and, as a rule, stroply in the affected

mysseles dues not occur-

Homorrhage into the cord produces a sudden purelysis, which is followed by atrophy of the affected muscles and loss of raflex contribility: but here also there is diminution of cutumous sensibility, the sphine-

ters are paralyzed, and hed-sores form early.

Paralysis of corderal origin may be distinguished by the affection of the cerebral nerves, such as squinting, facial paralysis, etc.; by the palsy being accompanied by tension of the messeles and squassedic contractures; by the preservation of electrical irritability; by the stiffness and extension of the joints; by increased excitability of tendors, and by the absence of aircoder.

In spannodir spinal paralysis the loss of power is incomplete, and occurs slowly and insidiously; muscular tension and contractions are present; there is increased instability of the tradous, and the affected muscles do

not atrophy.

The course of infantile paralysis is also very characteristic. The rapid restoration of power in the larger number of muscles affected and the complete paralysis of others is very peculiar; also the sarest of growth, which embraces the whole of the region first affected, is a very striking phenomenon. At a later period, when contractions occur in the limb, the resulting deformity may be distinguished from conpenital distortion by the very partial atrophy of muscles, the striking losseness of the lignments of the joint, and the permanent coldness of the part.

Progress.—As infantile paralysis is not a fatal form of sinces, our chief anciety mass be to estimate the chances of complete recovery in the paralysed numeles. For our own comfort and that of the friends we may re-

number that complete recovery, or at any rate that improvement, is the rule and not the scorption. Careful testing with the fundic current all give us very accurate means of determining in which muscles speedy retoration of power may be anticipated, and in which of them permitted paralysis is to be feared. The numbers which have lost all physiological connection with the spinal cord no longer respond to the induced current while they react to slow interruptions of the constant current (reaction of degeneration). This change takes place very rapidly. Fundic pritability is enfectived as early as the third or fifth day, and is lost by the average or

eighth.

In testing the irritability of the nuncion at this period a weak current should be used—one just sufficient to cause contraction in healthy are cles. Every nuncie which does not react to the fundic current after the lapse of a fortnight from the beginning of the illness is likely to be permanently disabled. Still, according to G. Sigurera, acceles which have long exceed to contract may sometimes regain their furnite contractality and recover their power more or less completely. On the other hand, as the muscles which retain some amount of furnite irritability, however faintly they more must to the current, return of power may be confidently prolicited. Even when recovery from the purplysis is complete, the child is still highly to seem arrest of growth in the affected limb; and it is well to warm the friends of the patient of this possible consequence of his illness.

Touterest. If we have the opportunity of sceing the child immediately after the occurrence of the paralysis, we should keep him perfectly quiet in bed, clear out his bowels with a brisk operiont, and supply counterirritation to the region of the spine. By the repeated application of mutard poultices, first to one part, then to mother, of the spine, a derivative action may be kept up as long as the skin will hear it. During the early days of the disease it is well to insirt upon a years position, until occueconally by laying the patient on his side. The dorsal position, which Invoirs congestion of the vessels within the spiral canal, should, if postble, be swooded. The child should be put upon a diet of milk and froth, and cure should be taken that his howels act regularly case a day. While there is any fever Dr. Althous recommends a daily subsentancess injection of a solution of Bonjean's ergotine-a quarter of a grain for a child of twiles months. At first no local treatment is admissible to the paralyses torsides; and the familie current should be used only for disquestives poses and not us a theorpeatic agent. But immediately my recours of power begins to be noticed, we should employ the fundic current daily, se as to said the restoration of the affected numeries. If there is at first to be spense to the induced current, the continuous current, with slow interruptions may be employed. It is advisable to use a current of sufficient strength to come a visitle contraction of the muscles. This, however is often impossible with children. Even a weak application may come exh agitation and alarm that its employment has to be discontinued. We should not in any case use a strong correct at first. Probably a weak corrent, in its influence upon the nutrition of the nuncle, is preferable to none at all. Dr. Govern recommends that in the beginning such a strength should be employed as the shift will beer without much enotional disturbsucce, and if care he taken not to alarm the child at the first, a current of our scienable strongth can be perhaps made use of afterwards.

Besides electricity other useans should be used. The purplyed imb

tance of which has been very properly insisted upon by Dr. R. J. Lee. If the affected parts are very cold, they may be rubbed several times a day before the fire; and het applications of any kinst—bags of hot call, bran, hot fluored, etc., may be kept in contact with the limb to maintain its temperature. Great assistance will also be between from regressive shampeoing. It is advisable to order strandsting liminents for this purpose, as frictions are always employed with more energy if something is given "to be rubbed into the skin." The child should be also encouraged to use the weakened limb as much as possible; and Velkmann insists strongly upon the worse than uselessness in these cases of crutches or other forms of mechanical support.

It is usual to give strychniz to these patients, either internally or by subcutaneous injection. The remody has probably little infraence in restoring power to the disabled muscles, but as a general tonic its use may be not without value during the stage of recovery. It may be combined

with fron and quinine.

In most cases of infantile paralysis, when recovery does not take pince within the first two months, the course of the disease is long and todious, and improvement goes on but slowly. Still, our efforts are eventually re-warded by a striking return of power even in cases which at first had appeared almost hopeless.

The cure of the deformities resulting from atrophy and contraction of

muscle come under the department of the surgeon.

CHAPTER XVII.

SPARMODOC SPINAL PARALYSIS.

Seasonce spinel paralysis, sometimes called spastic parapleria, appears
from the resembles of Charcot and of Erb to be due to a science of the
Interal columns of the cord. The disease, which consists in a gradually
advancing weakness or paralysis of the limbs—generally the legacia scartimes seen in children and even in young belies; indeed in many case it appears to be congenital. Like infinite spinal paralysis the lesion is arounpanied by no disturbance of the cerebral functions, no affection of sensation,
and no loss of control over the bladder and rectum; but, unlike infaulte
paralysis, the affected muscles solden waste, there is crossive rigidity of
the joints, and the tendinous suffexes, instead of being abeliabed, are incrossed in activity.

Constitut.—The lesion may develop itself in the earliest childhoot. Its causes are unknown. Seligenuclier has recorded an instance in which four children of the same family suffered from a form of the affection.

Aforded Assertency.—No cases of death from this disease have been esticed in children; but in adults the syngtoms have been connected by Charcot with degeneration of the lateral columns of the cerd. On action of the cerd the gray degeneration is seen to be symmetrical and to scapp the lateral columns on each side of the cord. The diseased again, as seen on the surface of the section, is triangular in slape, and reaches it surface to the anterior gray cormus, outwards to the pia mater; in frost a passes gradually into the leadily substance of the columns. The degeneration is not in patches, but appears to be diffused over the greater position of the length of the cord, and may reach up to the medicile or sun beyond it. In some spots the process is more intense than it is in other. On microscopical examination of the degenerated portions, the neuropies is found to be thickened, the nerve filters to be degenerated and wasced and the gaugion cells to be desured and swollen, or strophood, pignatical and finally almost destroyed.

Symplems.—Whatever may be the age of the child when he fest come under observation, we shall generally find that the symptoms date back to the period of infuncy, and that they were first noticed only a few seeks in months after birth. On questioning the mother we commonly bour that when quite a buby the child's legs were stiff, and that on this account washing and dressing him was a troublesome matter; that although able to move his legs when lying down, he could never stand, and that my stateout to do so increased the stiffness. If he did succeed in walking at many long after that at which a healthy child can run alone, he was seen firm on his legs, and soon became weaker and tumbled about. Then the power described him altogether, and when placed on his feet his legs become stiff and crossed, the toes touching the ground but the heals being raised. As there is no fever, pain, or evident impairment of matrices, and

as in many cases the mental development is satisfactory, the weakness is looked upon as a personal perminenty which the child will "grow out of and he seldom comes under observation until the disease is fully developed.

In a child so afficted two phenomens are at once noticed; there is weakness of the lower limbs, and the joints see stiff, and become stiffer

when handled.

On examination we find that the legs are moved awkwardly and with difficulty. As the child lies in his cot the limbs are extended and only slightly flexed, and the patient may have some power of bending his joints, although some are moved with greater facility than others. The sameles feel rigid to the touch, and when the joints are forcibly flexed—which can be done without inflicting pain upon the child—they straighten again abruptly, as if moved by a spring. Handling the limbs increases the rigidity of the joints, and often the more approach of the physician appears to have the same effect. Movement, whether active or possive, produces no transors in the affected limbs. It only increases the rigidity of the number.

When the child is held under the arms, so as to feel the ground with his feet, directly he attempts to walk the thighs are closely pressed together, the knees are a ightly bent, the feet are inverted, and the sukles extended so that only the points of the toes touch the floor; the lags become rigid and soon cross one over the other. In ball cases the heals are not brought into contact with the ground at all. Sometimes the child, although he cannot walk is able to stand, supporting himself against some object. The tigilities appear to contribute to his helplessness as much as the motorwedness; and sometimes the attempt at voluntary constraint, conflicting with the staffness of the muscles, results in a sort of choose.

The lock is often very weak, and the nuncles of the abdomen may betone hard when the skin is instanted. Control over the splineters is not inverfered with; there is no paralysis of the face, nor any bendency to the formation of seres or sloughs upon the parts exposed to pressure. The degree of intelligence varies in different cases. Often the clobb serms as quick as others of his ago, but sensetimes he is dull and stapid. Asticulation may be affected, but, us a rule, the patients speak readily and clearly.

Occasionally the arms are affected. In a case reported by Dr. Gre—
a lattle get, eight years old, in whom the paralysis had evisted curtainly
from the age of twelve mouths, perhaps from an earlier period—the arms
as well as the logs became stiff when the girl was noticed. The arms were
totated outwards, the elbows were strongly extended and the wrists promited, the hands were also extended strongly and thrown back at the
wrist; the fingers were fiered. The child could move the opposing notefies but with difficulty, and after movement the arms seen returned into
the position described. The left arm was more affected than the right.
Dr. Gre has described eight cases of this interesting malady, of which the
first was observed before the publications of Erbonal Charcot had attracted
general attention to the disease.

The constant rigidity of the muscles affected is not accompanied, as a rule, by any wasting, although in exceptional cases, when the discuss is of long standing, one or more (not all) of the implicated muscles may show some signs of atrophy. The rigidity is a permanent phenomenous, persisting during sleep, and only disappearing temperarily when the oblid is placed under the complete influence of chloroform. The tendinger referes are more active than in the normal state, and the response to forelism is rapid

and apergetic. Sensation is unimpaired.

In many cases the actual amount of weakening of the muscles appear
to be slight. The impediment to walking seems to be more the result of
rigidities and contractions of muscles, which prevent the feed and limb from
being placed in a fitting position to support the weight of the hole and
frustrate the voluntary impulse, rather than of any actual paralysis. From
observations made upon the about sufferce, contractions are found to occur
as a later phenomenous, the muscles being merely rigid at first without my
shortening in their length. When the confractions come on the parambecomes seem noticeable. Eventually it may amount to complete loss of
voluntary motor power. This is, however, generally of inequal intensity
in different regions, being well developed in certain groups of used in, inperfect in others. Usually the disease is more advanced in one of the
limbs then it is in its fellow.

If a cirild, the subject of this discuss, he able to walk, his guit is very possible. The patient behaves as if giddy, and aways from side to able his limbs are wately separated, and he moves each leg awkwardly forward after sliding it slong the ground. The tendency appears to be to possible foot so that the feel is not in full contact with the floor. Consequently the bees are apt to catch at any uneventures of the ground, and the

child would fall on his face if not supported.

As the disease advances all the symptoms become intensified. The rigidation the contractions, the pureus, and the reflex irritability, all become increased. The lesion does not appear to be futal to bit. Of its later stages little is known, for after a certain degree of intensity is reached, and the patient has been rendered quite helpless, the disease seems to

winlergo no further clarge:

Assessment The rescutad features of the discuss are a slendy growing paralysis of the lower extremities, without wasting, but accompanied by excessive specimentic rigidity of numels and increased artistity of the tentinous reflexes. The discuss is therefore readily distinguished from infantile spiral paralysis, in which wasting and arrest of growth in the affected limb are the rule; the joints, far from being rigid, are excessively related, and the tendinous reflexes are abeliahed.

General neute nevelitis resembles the space disease in its increase of reflex excitability and absence of atrophy, but differs from it by producing paralysis of the sphineters, diminishing the estancous sensibility, and promoting the formation of bed-scree. Besides, there is a well-defined herizontal lenit beyond which the disease does not pass, and there is no upproach to the measurable rigidity which is such a characteristic feature of

spantaodic spinal panilysis.

In paralysis of combinal origin the loss of power is accompanied by busion of muscle and spasmodic contractions, the joints are stiff and entended, the numerics do not atrophy and continue to respond to familiar, and the reflex irritability of tendons is preserved. But in such a case there is paralysis of cerebral nerves, the loss of power is hemipleric in distrilution, the rigidities and contractions are very late to occur, and sensetion as well as motion is afforted.

Proposes. —The life of the patient appears to be in no danger from the illness, but at the same time his chances of recovery are small. Little is known as to the course of the disease in the child, but none of Dr. Gori

cases were influenced by treatment in the slightest degree.

Treatment.—Erls recommends the galvanic current applied principally to the spine, but also to the affected limbs, and the applicature of cell compresses. Drugs appear to have but slight influence on the dame. In a case of recovery reported by Von der Velden—in a man aged twentyseven—bronide of potassium, belladonna, and morphis had no beneficial
influence; indeed, the latter seemed to increase the number and intensity
of the attacks. Caloral, however, was useful in moderating the spasmodic
attacks when they were at their worst, and improvement began to be manifested while the patient was taking the double salt of gold and sodium.
In Dr. Gue's cases bemlock, belladonna, Calabor bean, and strychnia—the
two last hypodermically—were used in turn, but without the slightest
benefit.

CHAPTER XVIII.

PSEUDO-HYPERTROPHIC PARALYSIS.

This singular form of paralysis, in which extreme feebleness of the parachalla combined with an appearance of extraordinary development and rigary was first studied and described by Ducheums, of Boulogue. Almost at the same time, however, Dr. Edward Meryen, in England, had published was interesting particulars of four boys in the same family who was all affected with what appears to have been hypertrophic paralysis, although the author at the time was of spinion that the discuse was identical with progressive muscular strophy. Many cases have since been placed upon record, and there must be few stablines's hospitals which lave not at one time or another had an example of the discuse within their walls.

Covertion Of the etiology of the infamily nothing is known. Bis in the large najority of cases confined to the male sex. In Dr. Mercol's first series of cases, above referred to, all the boxs (four) of the family selfored from it, while the eight girls escaped. This fart also illustrates another tendency of the disease, viz., its properses to ninek sevent nembers of a family. Two, four, and more children of the same purents have been known to be affected, and Dr. Meryon has referred to a striking instruce in which eight brothers all died of the discuse. This tendency seems to point to a hypolitacy element in the etiology of the infimity. In investgating this question it is not enough, as Dr. Genrers has pointed est, to ascertain merely the health of the parents. Fences are mirely affected by it, and males, the nubjects of the disease, usually the at or soon after puberty. Therefore the tendency must be searched for amount the rollateral beam has of the family. Such evidence is generally found in Ge side of the mother, and instances of the disease in some nearbest of her family can be discovered sufficiently often to determine positivity the boquent existence of this consided inheritance.

The disease appears to be limited to childhood, and, indeed, is often economical, the first symptoms manifesting themselves during infancy or

shortly after that period. It seldom begins after the sixth year.

Merbol Juntony.—No morbid changes have us yet been discovered in any part of the nervous system to account for the discove, but the changes in the affected massless themselves are sufficient to explain the phenomenal of the affection and especially the apparent inconsistency between the unusual size of the numeless and their remarkable search of power.

In the muscles the nearbid process consists in an occupantial of the intercritial connective those between the fibros. The nucleated three tissue and the lat cells gradually increase in quantity and compane the nuscular fibros. These under the pressure become narrower, and their strice further apart, strhough still distinct; afterwards the strictions become indistinct, and the fibros dwindle and eventually disappear leaving the empty survedement shouth running by the side of the fibrous busiles and

prodiferated fat cells.

If the fat is greatly increased in quantity, the muscles on section may have the appearance of a fatty turnour in which no sign of muscular redness is visible to the maked eye. Under the microscope the filtres are seen to be separated by fat cells, but it is not common to find fatty degeneration of the muscular fibres thousalous.

Symptonic.-The nurlier symptoms are very apt to escape notice as they have no distinctive character. They consist merely in weakness of certain muscles, usually those of the lower limbs, and sometimes of the back. If the discuss begins in early infancy, before the time for walking has arrived, the child is noticed to be heavy to lift, and to want the responsive "spring" which is so marked a feature in the healthy infant. In such a me it is late before he nequires the power of walking. If he has been able to walk before the disease begins, he very quistly gets tired, and shows a curious unsteadiness when on his logs. He can be thrown off his bulance by a slight peak, and when on the ground rises again with difficulty. When the weakness of the muscles has reached a certain degree, the child is forced to assume a characteristic attitude. In standing he separates his legs widely, and throws his shoulders backwards so us to exercente the untere-posterior curve of the lambar spine. Consequently his belly is protraded, and, in a marked case, a vertical line dropped from the back of the neck falls clear of the buttocks. This attitude is the consequence of weakness of the extensors and the you of the hip and the extensocs of the know-the newsles which maintain the body upright in standing. The child, feeling these to be inscense, tries by separating his feet to exlarge his buse, and us, owing to the weakness of the extensors of the hip, the pairtie is inclined musturally forwards, he throws his shoulders backmards so as to keep the centre of gravity in the normal position. As he walks he still continues to separate his feet widely, and he oware his body from side to side so as to keep the centre of gravity over the foot upon which the weight of the leady is resting.

After a certain number of months, or, according to Ducheaue, a year has shipsed changes can be suited in the muscles, and the wakness becomes more marked. The calcas of the legs become enlarged, so us to give the appearance of muscul signor, and generally a similar hypertrophy affects other muscles as well. The global muscles, the muscles of the thighs, the posterior muscles of the spine, the deltoids, and exactines almost all the numbers of the trunk and limbs any share in this enlargement. If the muscles do not become hypertropined, they smally waste, and this diminution in size of some muscles readers more striking the extraordinary hypertropin which affects other numbers in their neighbourhood.

As the weakness of the number goes on progressively increasing, the characteristic attitude and got become more and more surked. At the same time my slight extra strain put upon the muscles in the performance of certain acts increases the difficulty to such a degree that the child is reduced to some very curious experiments in order to accomplish them successfully. Time, in rising from a chair, he endeavours to assist the execution of the knee-joint by plusing a hand on each ferming just above the knee. By this means, repectally if at the same time he bend forwards, in transfers a large part of the senight from the extremity (the hip) of a later whose fulcrum is at the knee to a part of the lever close to the fulcrum—or, even, if the body is bent forwards sufficiently to throw the centre of greaty in front of the knees, actually uses the weight to be

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moved as a motor power to effect the straightening of the knee-joint.

Again, in extending the hip-joints the patient begins by placing his hanks as in the former case, just above the knee, and then moves the hanks alternately higher and higher until the straight position is arrived at

For some time the numeles rotain sufficient power to carry the patient at a moderate pace along a level surface; but he cannot jump, and in mounting the stairs he is forced to do so on his hands and knees. If told to get up from the ground, the child can only obey by going through a series of elaborate manorivres, all calculated to relieve or most on weakened muscles. As Dr. Gowers describes the process, the parent being on all fours, keeps his hands on the ground, and stratches the legs out behind him far apart. Then, still keeping the body supported chiefly by the hands, he manages by shuffing backwards on the toes to get the knews extended. The body is thus supported by the hands and feet all placed as widely apart as possible. Next, the hands are alternately moved backwards along the ground so as to bring the larger portion of the weight of the trunk over the legs. Then, one hand is placed on the knee, and a push with this, and with the other still on the ground, is sefficient to enable the extensors of the hip to being the trunk into the upright position. In many cases the child cannot rise at all unless near to some piece of fermiture, by means of which he can gradually bout his trank upwurds with his hands.

As the paralysis extends the patient gets more and more helpless; and when the upper limbs become affected, as usually happens after a few

years have elapsed, his condition is very distressing-

The affected nancies do not always increase in size. Sometimes they waste, and the hypertrophy and alrephy are irregularly distributed. Durally many more nanotice are stated than are enlarged. The hypertrophy is upt to affect by preference certain nancies. The number of the sulf, the vests of the thigh, the glutari, the infra spinati, and the deliteds are often enlarged. On the contrary, the massies on the front of the leg are more usually tracted, and wasting is also more current in the latinations does and the sterno-costal portion of the great period muscle. In the sum the bicops and tricops may be enlarged, but the muscles of the freezem are marely affected. Sometimes the temperals and massesters are hypertrophical. In some care cases the massies, below they begin to enlarge, have been soliced to be smaller than natural.

This form of purelysis is not accompanied by my general fever, but Dr. Ord has noticed a higher temperature in the log where the muscles are hypertrapheed than in the corresponding thigh. This, however, is not a constant phenomenon. At first the muscles respond normally, or easily no to the galvanie current, both interrupted and continuous; but when greatly wasted, the nonreadur response is weak, or even about. The lane reflex is usually notably diminished. Sensation, however, is uninspired

Towards the end of the disease contraction and shortening may over in certain nuncles—usually in those the opponents of which are excessively enfectded. This is a photomonous which is seen in other forms of paralysis, and its mechanism is discussed elsewhere (see page 375). There is, however, one form of confraction which has been said by Ducksons to be a constant symptom of pseudo-hypertrophic paralysis. This is added noticed before the end of the with year. It takes place at an entire period than the ordinary paralytic contractions, and occurs as a conquence of shortening in the length of the discussed pastronness. These someles draw up the heel so that the patient cannot press this part of his foot to the ground, and as the contraction increases a talipes equinue is developed. The deformity is usually symmetrical. When combined with the museum weakness it makes walking very difficult. Consequently there is nothing to oppose further contraction, and the extension of the arkle soon becomes extreme.

The disease may be associated with iditory and mental feebleurs, as appears from some cases published by Dr. Langdon Down, and with epileper and other forms of cerebral deficiency and disturbance. But those do not appear to be an essential part of the disease; indeed, in most re-

partied cases the corebral functions have been unimpaired.

The course of the disease is fairly constant, and the age of which the illness reaches its fatal termination varies, as a rule, according to the age when the symptoms first appeared. Thus, if the symptoms have occurred is infancy, the power of shanking is lost about the tenth or irrelith, and death ensure between the fourteenth and sighteenth years. If the sarly symptoms have been delayed until the sixth or eighth year, the patient is less incapacitated by the time puberty is reached, and may like to the age of minutees or twenty, or even longer. Still, sometimes the disease runs a shorter course, and it may happen that although late to appear the symptoms develope mpolly, and the patient quickly loss all power of supporting houseff agright. Even in the fatal cases death is only indirectly the consequence of the hypertrordic disease. When the muscles of the chest become obtacked, the inspiratory power is greatly enfectively, and any accidental long complication soon assumes alarming propertions. In fact, it is usually to bronchitis or premions that the fatal termination is to be firectly altributed.

Disputes.—Inordinate size and firmness of muscle combined with entrems weakpess and masteadiness, developing slowly, and becoming gradmilly more and more marked, without corebral symptoms, impairment of sensation, or weakness of the bladder or rectum, are the most characteristic features of the disease. The peculiarities of attitude and gait are also to be noted. The position of the child, as he stands with his feet widely spart, his abdomen protruded and his shoulders thrown back, his rolling gait in walking, and his method of helping to straighten the knees by pressing with his heads upon the feature just above the joint, must not be overlooked.

Hypertrophy of the nuscles is not always present. Largeress and lardness of the calcus are very characteristic, but scarcely my less characteristic are their contraction and wasting with drawing up of the heels. Dr. Gowers attaches great importance in diagnosis to the increased size of the infra-spinatus muscle, with wasting of the latissimus does and lower

part of the pectornlis major.

There is little difficulty in distinguishing the discase from infantile spiral paralysis, which comes on quite suddenly, in which the paralysis, at first general, quickly limits itself to certain muscles, faradic contractility early disoppears, and wasting is rapid and extreme; nor from spassacide spiral paralysis, in which spassa is a marked feature, with great regularly of joints and exangeration of the tendinous reflectes. It is more difficult to decide between this effection in its early stage and cerebellar tomour, or the indefinite beginning of intracrustial disease in well-nourished children—asses where sometimes all that can be detected is that the child is girldy and falls about. Stall, in pseudo-hypertrophic paralysis the attitude is unasistability, and the way in which the child rises from the ground can startedly be mininterpreted. Progressive muscular strophy is so excessively

rare in childhood that it may be left out of consideration. It diffes markodly from the disease we are considering by being never attended by nuncular pseudo-hypertrophy, and by invariably beginning in the upper part of the body. In a child seen by Duchenne it begin in the face.

Proposes.-When the disease is confirmed we can seared; hose by are remedial measures to stop the progress of the muscular change. If the patient he seen at an early period of the attack, before any enlargement of the muscles has been noticed, treatment is said to afford more lone of success. In estimating the chances of a lengtheued course we must take into consideration the period at which the first symptoms were noticed. the rate at which the affection is advancing, and the age and sex of the patient. According to Dr. Gowers, the progress of the disease appears to be often related to the process of growth; therefore the less the mountar change has advanced at a period when the growth of the body is conpleted, the greater the likelihood that the discuse will become stationary. As a rule, when it appears late it advances slowly. Therefore in the unit favourable cases the affection has appeared late, and has advanced but little at the time of full growth of the body. As these conditions are more often found united in girls than in boys, the female sex is in itself a favourable element in the prognosis.

Trectusest.—There is little to be done in the way of treatment. Ducheme states that he has succeeded in arresting the disease in two cases by means of faradism. Insuding and shampooing the muscles, and the use of lattle. Benedikt recommends the continuous current. Arsenic and phosphorus given internally have been thought to be useful by some. Supports to the spine are of service when there is great weakness of the back, and in cases of marked contraction of the rall muscles the tendo Achillis has

been divided with great temporary advantage.

CHAPTER XIX.

IDIOUY.

Meeras, feebleness or deficiency, either congenital or acquired, is, enfortunately, a fee from uncommon defect in childhood. The subject is an important one to the physician for although he may not be called upon to treat such cases, he as often consulted upon the chances of recovery, and every degree of feebleness of mind, but especially the milder forms of imbecility and more backwardness, may be brought under his notice.

Characters.—Heredity plays a very important part in the production of mental deficiency in the child. Imbeciles, fortunately, do not often marry, but a tendency to neurotic disease, such as insanity, epilepsy, etc., in the parents has a powerful influence in inducing feebleness of mind in their offspring. Dr. Langdon Down, from careful investigation in two thousand cases of idiocy, found that in no less than bety-five per cent. a well-marked

neurosis existed in the families of one or both the parents.

The scrophous disthesis has been said to favour the occurrence of idiocy; and there is no doubt that a large proportion of imbeciles are the subjects of scrophous cachecia. Still, mental feetfeness is not a necessary part of the disthetic disease; indeed, children of very orident scrophous constitution often display exceptional intelligence. The explanation may probably be that the acrofulous habit tends to foster the influence of a nearotic tendency, and that the latter will operate with grower force and certainty in cases where it is associated with malmutrition in any of its forms. So, also, consungainessis marriages, and intemperature on the part of the parents, are well-known agencies in giving increased energy to may bereditary neurosis or morbid timit. Therefore any instability of the nervous system which may exist in such persons is likely to develope into a new and more straing phase in their offspring.

The above influences are influences of a very general kind, and all children horn of the same parents must be equally subject to them. Idiota are soldon "only" children; indeed, statistics show that they are often been of more than ordinarily prolific parents whose other children exhibit no sign of intellectual deficiency. This being so, we must look for other

and more special causes for their mental failing.

These special causes may either operate during gestation, at the time

of birth, or after the child is born.

It is a suggestive fact that out of the two thousand cases investigated by Dr. Lampion Down no less than twenty-four per cent, were principarous children. The cause of this under preponderance in the first-been is no death owing, as Dr. Down points out, not only to the exalted emotional state of the noticer during her first pregnancy—a state in which all causes of disturbance would unturally operate with exceptional force, but to the tedionance of the first labour, which is upt to give rise to a condition of suspended animation in the infant. Dr. Down's statistics well illustrate the force of these influences. Twenty per cent, of the idicts were born with well-marked symptoms of suspended animation; and of idicts born in this condition, and only respectated by assidences labour, no less than furty per cent, were first-born children. Bearing upon the same watter is the fact of the prepondenance of male over famile idiots, for the larger land of the former would increase the difficulty of perturbition, and conduce to the state of suspended animation which experience shows to be so huntral to the cerebral ameticus.

Whether the mother be a primipara or not, powerful emotional shocks are injurious, and may act very unforourably upon her offspring. In as less than thirty two per cent, of Dr. Doum's cases there was a well-founded history of mental shock. Again, excessive sickness, by impairing the mother's notration, is also calculated to exercise as unforourable influence upon the intellectual development of her infant. Dr. Langdon Down found in ten per cent, of his cases a history of marked and persistent

romiting.

After the child is born other curses come into operation. The nordal inexpectty may develope at a constitutional crisis, such as the time of the first or second dentition, or of puberty; the amount of brain-power which had been previously sufficient for the units of the economy triing to carry it through such critical periods of development. Manuscheim in this cases may be an important factor in determining the brain-down. Again, accidental convex may come into operation in a child who had never shown symptoms of mental failure. Thus, he may become idictic as a result of repeated convalsions or epileptic attacks, of chronic hydrocephalus, of injuries or blown upon the head, of some infimumntary condition occurring as a complication of neutral disease, and of impairment of the senses interfering with the development of the intellectual faculties.

One form of plicey-cretinism-is endence in certain parts, although it

may also occur spondically.

Mochal disabous. In most cases of idiacy—in all in which the mental deficiency is congenind—the brain is small and often imperfectly developed as well. There may be great simplicity in the convolutions, approaching to the condition of the brain in the authorpoid spec; there may be stroply of the medalla oblongate, and asymmetry of the brain of the brain absence of the corpora geniculate, the corpus rallocate, or even, as we see in a case recorded by Crurovihier, the whole cerebellum; the convolution may be strunken and the brain substance burdened. In other cases the child may be from birth the subject of chronic hydrocrybalus. The brain is sometimes absormally large, but may present no obvious change to the naked eye. Still, from the researches of Dr. M. Justrovitz it seems that even in these cases careful morroscopic examination may detect alterations in structure in the minute tissues of the brain, especially a persistence of authorical elements which are normal in the embryo, but which ought to have passed into another form in the growing child.

Again, there may be ermind as well as cerebral abnormalities. The sectures and fontamelies may undergo premature coalescence; and if there he no compensation by unmorably alow conflictation at the base allowing of greater expansion in that region, the entire eraminm is well proportional but very small, and profound disturbance of the growth of the brain is the consequence. If, however, there he hasic expansion, a special type of physiognomical and physical development, which Grissinger has described as the "Astee" type, results. When the base of the crimina is shortened by conficution, it is indicated to the eye by malformation of the face. We

and the eyes widely separated, a prominent ridge to the nose, and high and prominent check-house. There may be actual microcophalus, and the development of the pone and archalla is often affected. Usually, however, a certain compensation is found in extension of the skull in different directions, producing assay varieties in the shape of the cranium, and allowing of more or less expansion of the brain in the upper regions.

Furieties.—Many different methods of classification of utiets have been proposed. There is the psychical classification of Esquirel, in which the idiot is arranged into three classes, according to the degree of speech of which he is capable. The first class includes those who are merely words and short phrases. The second class consists of those who can articulate menosyllables or certain cries. To the third class are referred those who

are capable of articulating neither words nor monosyllables.

Inlots may be also arranged into three classes according to the development of nervous function. A first class exhibits nothing beyond the reflex accordance thrown as excito-motor. In a second class the reflex acts are conseronal or sensori-motor, including those of an ideo-motor or emotional character. In a third class we are manufest volition; their ideas produce some intellectual operations and consequent will.

Another classification is that suggested by Dr. Langdon Down, according to their resemblance to ethnological types—the Cancasian, Ethoquan, Malay, and Mongolian. Dr. Down has also proposed a good practical classification, based on etiology, into L. Congenital; 2. Developmental; 3.

Accidental

The congenital group embences all those cases where the signs of mental deficiency date from birth, and includes as aubdivisions: a. Stromous; b. Microsephalic; c. Macrosephalic; d. Hydrocephalic; c. Eclampsic;

f. Epiloptic ; 4. Paralytic ; A. Choreic.

The developmental filled is a child who is born with a fair amount of brais power, but who breaks down at one or another of the developmental crises—at the first or second dentition or at puberty. Such children loss the power of speech and their minds seem to give way at one of these evolational stages. The group includes as subdivisions: s, Eclarquie; b, Epileptic; c. Choreic.

In accidental idiory the mental break-fown is the consequence of some shock or traumatic injury, or discase operating upon a healthy child born free from any tendency to intellectual deficiency. This group includes:

o, Transactio; A, Indiamonatory; c, Epilepéic.

Symptoms.-In cases of congenital idirey the buby begins from an early age to show flat he is not the same as other infants. The development of his faculties does not run the ordinary course. He cannot support his head like another child, but lets it hang back on his name's arm. Then, he takes little notice. A healthy infant will often recognise his nother by the math week; but long after that period the place child shows no recognition of faces. His open have a vacant look, seem incapable of firing upon an object, and often smilhts from side to side (systagmos). Again, he does not smile or length as a child will do whose scoutal development is affemeing naturally; and manalests a strange includity to group with the hand. A healthy child's fingers carl round any object presented. to them at a very early age, but the idiot infant seems to have no power of making any use of his bands. Moreover, when danced up and down, his muscles do not contract in sympathy with the movement. He seems to derire no pleasure from the exercise, but remains a dead weight like a berry doll.

The head is usually noticed to be peculiar in shape from an early age. It is often high in the crown, and perhaps the fouranelles are closed or nearly so, at the end of six months. Again, from the investigations of Dr. Langdon Down it appears that a high-vaulted pulate—the V-shaped pulate—with a very narrow transverse diameter is a common deformity of the congenital idiot. The tongue is often corrugated with transverse furnous, and scenetimes is not completely under command. It hangs out of the mouth, and the child dribbles in an unusual degree seen for a haby. The teeth are commonly late in being out and often appear irregularly.

At twelve months old, when the child should be able to stand, or should at least cruwl on the floor and try to ruise himself on to his feet, he less just us he is put down, suthout an attempt to move himself along. Other he does not learn to walk until he is three or four years old. It is also difficult to teach him cleanly habits, and he remains infinitine in his ways at an age when other children have long been taught decease and

onler.

When addrey is congenital, growth and development are impaired as well as mental power, and the general health is for from satisfactory. The patient is stricted in his stature and looks younger than his age. The circulation is often feeble, and the temperature a degree or two lower than that of health. The feet are cold. The heart is frequently small and well in structure, and there may be an open formore ocals or other congenital deficiency. Often other malformations are seen, as impurfect development of one or more fingers, a rink foot, or some stronge shape of the area Such children may show signs of rickets, and are not seldem of decidedly sometabous constitution. As they grow up, as suplement small is often totical about the body and treath. In bud cases automatic movements are present; chores and epileptic fits are common complications, and the senses are frequently duff,

Grissinger describes two special varieties of blicks—the apatietie and

the excited.

The apathetic class are awkward, clusser, and dispreportioned, with repulsive, obi-looking features. From their torper and impassiveness they seem to be in a dreamy state. Their expression is either brooding and melancholy, or various and indifferent.

The excited or agitated close are just as stoped as the other, but are quick in movement and irritable, passing rapidly from one impression to

mother, and quite inequalse of fixing mything on their mind.

Between these two principal groups there are many intermediate varieties.

There is one form of idiney, endemic in some countries, spendic in others, which ments a separate description. This is cretimine. The least-bases of intellect from which cretims suffer is combined with straing perchiarities of bodily structure. The condition is always congruent. It is not bereditary in the ordinary sense, although where the other condition indusing the discuss provail, the child will become cretimous more containly if born of cretimous parents. The discuss has been said to be dependent upon the general courses of ill health—bad air, bad water, imperfect descare, insufficient light and pour food, combined with the use of water leaded with colors can saids. It may therefore prevail in any quarter of the world where these conditions are found; and certain close talleys in the Alpa. Pyreness, and Himalaya mountains are especially noterious for the number of cretims born in them. The value of these causes in producing the condition has, however, been called in question. Perhaps it is best

to say that nothing positive is known with regard to the etiology of the discase. Whatever the came may be, it appears to be also the came of gastre, for cretinism and goitre are frequently associated. It has been said that noting fieldy the cames produce goitre, arting strongly they give rise to retinism; but even this is hypothesis. Cretims are not invariably goitrons. Indeed, in spondic cases, such as occur from time to time in London, it is not inscention to find that the thyroid body is absent. In two cases which came under my own notice no trace of a thyroid body could be detected. It is in places where cretinism is endemic that it is usually complicated with goitre; but even in such neighbourhoods the gottre is not confined to pretingue authorite; and the area over which goitre is endemic is much larger

than that in which cretinism is prevalent. Virchow's researches have done much to chiridate the chief feature of entinism. According to this authority, it consists in an abnormal tendency. to optification and coalescence of the three benes which represent the bylies of the last three eranial vertebra, viz., the basilar process of the occipital fone, the post-sphenoidal, and the pre-sphenoidal bones. In the normal condition confication in these bones goes on slowly from behind forwards, and truces of unosofied cartilage may be found as late as the thirteenth year. During the whole of this time the cartilaginous parts are still growing, and allow of expension of the base of the shall and enlargement of the eranial envity in proportion to the wants of the growing beam. In the cretin, in whom ossification in these parts takes place early, the base of the skull cannot elongate; the distance from the crista gailli to the occipital formen remains short; the corresponding parts of the brain are imperfectly developed, and the form of the shall is modified. Moreover, the bouse of the shall are in many cases greatly thickened and the formmin narrowed. The bruss of the Embs frequently show the same tendency to rapid ossification, and the shafts form early union with their spiphyses. Consequently, the growth of the bones is imperfect. The besis undergoes many medifications. Important parts, such as the graglis at the base, are often ill developed, the mobile oblougate may be wall, and the fissure of Sylvins studios and ill-defined.

The physical and mental characteristics of the cretic are well illustrated by a case which was under my cars in the East London Children's Hospital. The patient was a little gark, aged seven years, who had come of a tealthy family on both sides. She had five perfectly healthy brothers and sisters. The family based in Shadwell, in the neighbourhood of the hospital. The child was said to have been a fine buby at hirth, but as the menths passed no teeth appeared, and she showed no inclination to stand or even crawl upon the floor. She generally seemed very dull and apathetic, but sometimes brightened up and became more lively.

At seven years of age, when admitted into the hespital, she was burely thirty-one inches in height. She looked very bount for her height, and weighed thirty-one pounds eight ounces. Head large, nineteen inches in circumference, covered by long, sparse, coarse hair of a dull reddish broom colour; features large and coarse; bridge of now depressed, eyes wate spart; lips thick and posting; mostle generally kept half open; teeth sparse, as if wors down; tougue large; eyes gray and dull-looking; expression vacant as a rule, but sometimes brightening up when amound with a delt or bull. No trace of a thyroid gland could be discoursed; above tach clarigle was a semi-globular mass, about the size of a Tangerine teams. The skin was rather dry and shrivelled-looking, with a yellowish tint. The chest was well formed. There was no beading of the ribs or other sign of rickets. The tibus were somewhat bowed outroofs, but the

limbs were mussive and the flesh form.

The child entited when spoken to, and could say the word "doll" bet appeared to apply it indifferently to all kinds of toys. She could not walk but crawled about on her hands and feet, keeping her knees mind. When she reached a table or bed, she would raise herself into an upright position with her hands and stand holding by it. The child passed were and focces in the bed. Her temperature was ladetually subnarred.

The soft globules lunger above the clavicles are frequent in its spondic form of cretinism. In Mr. Curling's cases they were found after death to

comist of fatty lisses.

In another case which cause under my notice the patient, who had the appearance of a child, was really over screateen sears of age. His height was half an inch under three feet, his weight, thirty-six pounds fearteen case. He had all the physical peculiarities described in the presion case, but was more intelligent and closely in his labels. He could appear simple questions as to his food intelligible. He had the same fully masses in the supraclayacular hollows, and no thereil body could be felt. His genitals were those of a child, and he never manifested any

sexual propensation.

The symptoms of eventions selfons appear before the sixth or senseth month. The bend is usually large, for cretical never belong to the microcephalic type. The pulste is often flat, and not highly arrived, as in ordinary congenital idioty. These patients are usually quiet and good-tempond, allthough subject to occasional fits of passion. Their senses are often dall, and they endure great cold and bent without apparent disconfect. It is, however, one of the characteristics of idiots generally that their sense are obtase: they can often bear pair with singular middlerone; their time is not uncommonly impaired or percented, and sometimes they have but a faint sense of small. Often their night is defective from congenital mismod, or imperfect sensibility of the return, or large-matropia with diminished accounts lation; but unless they have suffered from discuss of the sar, their bearing is usually of normal neutoness.

The mental condition of allots has many varieties. In the lowest form there is complete spathy and torpor; no power of attending to or even recognising their own wants, and no capacity to speak or to understand words spoken to them. Such beings can only make anintelligible roless. They have not the slightest power of will, and seem to have little power of originating a successent, but often repeat mechanically some automatic

motion of the head, the body, or a limb.

At the other end of the scale is more feebleness of mind. Such chidren can be taught to read, and are capable of great improvement by kindness and perseverance. Even in the higher class of idiots speech is usually defective, partly from mulformation of the month; partly from twant of co-ordination of the lingual nuncles; but chiefly, no doubt from the percenty of their vocabulary, and the small stock of words to which they attach any definite meaning. In all the severer forms of bilings no attempt at speech is over made; and, as Grassinger observes, the idiot who does not speech has no internal idea of speech, and is therefore "deficient in the most securitial element in the mechanism of abstraction."

Lifecy has been described as a fixed infantile condition, and the ship has been compared, as regards intelligence, with a healthy child of sexany months or years of age. An idiot, however, is not merely a healtened child. With him volition is feeble or quite absent; and he has into insgination or power of abstract thought. Therefore, although his actual degree of intellectual development may correspond with that of the younger shiel, there is a something still wanting, which if wanting in the chiel with whom he is compared would occasion very serious anxiety. Sometimes one faculty is developed in idiots to the exclusion of all others. In all treations on this subject instances are given showing remarkable aptitude for music, drawing, and reckning; also for various forms of mechanical construction as corporatoring, model-making, etc.

Dispects.—Library must be distinguished from more backwardness, and also from cases where the development of the mental faculties suffers

through deficiency in the sense of bearing.

Mere backwardness, even when present in a marked degree, is for removed from idiosy. The class of backward children presents many points
of interest. The delay in development is usually physical as well as mental. They are small but not usually deformed; and there is so symptom
of discuss of brain or disorder of mind. They are simply backward children in whom progress of every kind takes place very lenarely. Instead of
learning early to walk, and picking up words and ideas with the quackness
of a healthy child, they are slow to walk, slow to talk, slow to quit the
labits and helplessness of the baby for the decency and independence of
later shildlessd. Suil, they do not remain stationary like the cliet, they
do harm, although slowly; and with patience can be taught in time much
that forms the education of a child of ordinary capacity. Backward children, however, sometimes become idiatio. If they happen to be also epleptic or arbitished to self-above, they may gradually become deiller and
builer and full into a state of complete idiony.

In all cases of backwardness, especially of lateness of talking, with apparent dainess of saind, the state of the bearing should be impaired into. A child who hears imperfectly is always slow in acquiring the power of articulation; and besides, as Dr. West has pointed out, his difficulty with this defect of keeping up intercourse with other staldren makes the patient

dell, suspicious, and mehildlike.

Blicey, when confirmed, is of interest chiefly to the specialist. The collvary practitioner is most concerned with the early symptoms of mental feebleness, as this is seen in the infant. Nothing is commoner than for the family physician to be consulted because the haby "does not seem to take notice."

Is a healthy infant the senses come into play in the following order: Sight is the earliest to manifest itself. A formight after birth the infant's rose should follow a light, as that of a lamp; and at the end of a mouth or six works he is often able to recognise his runse and will small when she approaches. During the first few weeks babber often squint, especially wish locking at a near object. Later they become more expert in focusing their syes to suit various distances.

The child seldom gives evidence of hearing sounds before the third nouth, although Darwin states that his infants started at subden noises when maker a fortnight old. Babies do not recognise soices until after the fearth month, and it is the eighth or minth menth before they begin to

recognise objects by name.

With regard to movements: a child of two months of age will raise his head from the pillow; and after the third month will begin to use his lands and to toos up his head. At this time (the third month) he can support his head well. It is usually the ninth month before the child. "Seels his feet," an, presses his soles to the ground when held to the floor. He should walk some time between the tenth and the nighteenth mouth.

A healthy infant should keep his tongue within his mouth from the carliest age. His fortunelle should not close before the righteenth mouth nor be completely ossified before the end of the second year:

The faculty of speech is acquired much more quickly by some oblines than by others. Most babies will begin to say words after the end of the

first year, and many can talk freely by the end of the second,

It is solden before the end of the sixth mouth that any suspecies is big that all is not right with the infant's neutral development. Then it is usually the recency of his expression, the absence of my smile to great his mother's approach, some peculiarity in his way of taking food, and the dead weight of the child as he lies with his bend back in his mars a great that first excites the unxiety of the parents. In such cases we some the weakness of the muscles of the tuck and neck, and their mability to our port the head or keep the body erect for a moment, the avalagram, the vacuat look in the eyes, which never seem to fix upon an object, and easnot be made to follow it when it is moved before them, the abnormal face of saliva from the mouth, and the passiveness of the child's hand when a finger is placed in it-so different from what occurs with the healthy below who at once aqueens anything which touches his fingers. On inquery me find either that the child is always whining, or that he is strongely short and pays no attention to sounds which please other industs of his age; also, perhaps, that he takes the breast or buttle very slowly, and often makes a currous cheking noise at the back of his nose. In such cases we generally find that the palate is narrow and highly arched (the V-shaped palate); that the head is small and of a curious shape—unsymmetrical or very high and carrow in the crown; that the fontapelle is excessively small or quite closed; that the hands and feet tend to be cold; that the nursicaled flabby, and on commination we can sometimes discover a consental leaf complaint, a club foot, or some other form of congenital defermity. In Laugdon Down has drawn especial attention to the appearance and postion of the ear. A helix or the lobule may be sprite absent, and the passe is often planted further back in relation to the head and free than is the healthy child. Dr. Down also directs that the position of the eye, as is obliqueness, as well as degree of separation, should be noted, as there is often on approach to the offmical variety described by this physician is the Mongolian type. Also, that the integument about the eyes should be examined for semilmar folds of skin at the inner cantless (spirasther folist, which are more common in feeble-minded infants than in the bealthy.

The cretic can usually be recognised without difficulty by his simfel growth; his large head; has depressed now, with widely separated eyes, his shall, heavy expression; wide mouth, broad lips, and thick to give; his shrivelled-looking toway-skin; his heavy limbs and awkward walk. If the disease is endemic, there is probably a goifre; if aperadic, we notice the current Boshy chastic masses above the clavicles and the absence of a thyroid gland.

Proposit.—The most hopeful cases are those in which the defect is a congenital one; the worst are those of accidental origin who bear is their faces and persons little trace of their infirmity. Purelysis or embry, or other form of across instability, increases the difficulty of the case. So also, general feebleness of health is a har to improvement; and preferred acrossions eachesia, or a weak heart and feeble circulation, resolve the patient less responsive to systematic training than another whose untition is more satisfactory.

Dr. Edward Seguin regards as favourable signs: Steadiness of the walk, which decists little from the centre of gravity; a hand firm without stiffness, and not disturbed by sutomatic novements—one which can take and leave held at command; an uninequired state of the senses, especially a look which is easily called into action; a command of the words, however imperfect or few, which the child may possess, so that they have a conrected meaning and come out opportunity; activity without restlessness; willingness to obey; sensibility to prose, and espability of returning as well as of receiving curesses.

A contrary state of things must be looked upon as unfavorable. Moreover, if some feelings of affection have been developed by kind parents, and are not followed by corresponding intellectual progress; or if the illiety is complicated by extensive paralysis, or worse, by applepay, the

programmis in very had.

Frontseat.—In the treatment of idicory our first care should be to attend to the general health of the patient, so that he may be put physically into as good a condition as he is capable of reaching, and afterwards to inculcate voltion and co-ordinated voluntary movement by careful physical training; to attend to his moral education, and do what can be done to

develop his intellect.

It is very important that the idiot should be removed from the society of healthy children, whose games be cannot share, and whose companious-shap he cannot enjoy, to association with beings afflicted like himself, in the presence of whom he is not oppressed by a painful some of inferiority. It is indispensable to the due progress of the feeble in mind that they should be received into asyloms and establishments especially devoted to the treatment of such cases. In these every means can be adopted to counteract the aerofulous tendencies of which a large proportion of the patients are the subjects. The building can be erected at a suitable elevation on a porous soil of sand or grant! The rooms and passages can be large, well ventilated, and suitably warmed. Moreover, a proper system of building and shampeoung can be established to promote the healthy action of the skin and invigorate the feeble muscles.

The dictory about 1 be liberal, and presented in a form to suit the peculiarities of the patient, for namy idiots cannot then their food. Some, mised, can only smallest it when it is placed for back on the tongue, so

that it may come within the grasp of the pharyngeal muscles.

Residence at a special training school, it is generally lead, should begin when the patient is about seven years of age, unless the existence of constitutional discuss, epileptic fits, or other complication requiring constant medical supervision necessitate earlier admission. The system of training can be divided into three branches: physical, moral, and intellectual.

The physical training consists in careful coloration of the number by regular co-ordinated movements which being the will into exercise, and substitute purposive acts for the similar automatic motivus which are so characteristic of the vacuat round. The exercises are graduated, and pass from the simplest movements to others more complex in character, so that, as Dr. Langdon Bown observes, " the idial builds up a series of co-ordinated voluntary movements which are applicable to the wants of daily life."

Moral education teaches the child obedience, and encourages him to endearour to win the approval and retain the affection of his teachers by doing what he is told is right, and avoiding what he is told is wrong

The intellectual education is based on a cultivation of the senses.

Touch and feeling are trained to appreciate differences in the farm of objects, beganning with simple things and proceeding grafuely to the more complex. Sight is cultivated by making the patient appreciate light and darkness, and accustosoing him to match coloured counters or string coloured bends. So on with the other sensor. Everything that is taught should be taught in the beginning in the simplest way, and we should note some that the first fact has been thoroughly grasped before we pass on to the second. In this way the mand is selected through the sensor, and in time by patience and persoverance astonishing results may be often obtained.

Part 6.

DISEASES OF THE ORGANS OF RESPIRATION.

CHAPTER L.

PERMINATION OF THE CHEST.

The affections of the lungs constitute a very important branch of the discases of childhood. The study of these complaints must no doubt present pscular difficulties, for persons who are fairly conversant with the ordinary unlables of early life will often profess their inshility to understand them. In many cases an examination of the chest in a shift sumet be carried through without much taxt and management; in others the utmost goallsness will not reconcile the patient to a procedure of which he only perevices the inconveniences; and even in the most facuumble cases the observer meets with psculiarities in the physical signs which in one unaccustomed to such youthful putients may give rise to considerable perplicitly.

In order to examine the clast of a child with success the patient must be saised up to a convenient height. If we steep down to a child as he sits upon his norse's lop, our own position is cramped and uncomfortable. Fally to approximate minute decentions from a benithy state the attitude of the observer should be one of case. In the case of an infant, to examine the front of the chest the child should be held upon his back on a custion placed upon the table. Some ballies, however, are at once when hid upon the back. In such cases the patient may be placed in a sitting position on the custion supported by the nurse. When the back is examined the nurse should stand up and take the child on her left zero, so that his lessed and right arm hing over her left shoulder, and his left arm is broadly applied round her neek. In this position the nurses of both shoulders are related. An other child can be sented upon a table for examination. It is needless to say that in both cases the putient should be completely shipped to the waist.

Much may be learned from mere conjecture of the chest. In the case of an infant the points to which attention should be directed have already been referred to (see page 12). In children of four or five years old and upworks we can often ascertain by this moons the existence of a constitutional prelimposition. In children of consumptive tendencies the lumps are small. As a consequence the thorax is forced to adopt the fit to the size of the contents. The shouldess are narrow and sleping; the ribs are very chique and the close elongated; and the stopula project backwards like usage. The prominence of the shoulder-blades has given the name of "slar" or "pterygoid" to this variety of closet. In small-longed children, and children with vulnerable cheets, the thorax is often flattened anteriorly, as in to dimensish the antero posterior diameter. The flattening is due to yielding of the costal cartilages under the pressure of the atmosphere when the lungs are expanded in the act of inspiration. It is usually the consequence of narrowing of the air-tubes from catarris of the mercons usenisms. If we notice the shape of the chest to correspond to either of these types, as must examine the upone wery carefully for signs of disease. Moreous, in the treatment of even the simplest pulmonary decapeness in such cases we must be careful to follow up any special medication by taxigenting measures, and want for complete constitute of the cough before age.

mitting the child to resume the ordinary habits of health.

If we notice as infra managery depression on such side of the deat, with some prominence of the lower part of the sternon, we infer that the patient has been subject to long-continued or frequently repeated athera of pulseonary cutarts. In these attacks the nir-tukes are maroned by the presence of enterth, so that air penetrates is such contributed into the large, and apparaises, especially of the inferior lobes, is incomplete. As a consequence the lower ribs, corresponding to the imperfectly infated thoses are no tracted at each descent of the displorage. As the lower ribs full in the lower coul of the breast-bone is forced forwards, so that a horizontal solution of the obset at this point, instead of elliptical, would be trangular. After a succession of these extracts a certain amount of permanent collapse to induced in the lower lobes, and the deformaty becomes a permanent one. The prominence of the sternom from this cases constitutes one of the varieties of "pigeon-breast." The rickety close is also pigeon-breasted, in its explained closewhere (see page 139).

The control expedisped depression of the lower and of the sternm and corresponding cartilages, sometimes not with, has been referred to in a

precious chapter (see page 12).

The movements of the chest in inspiration must be carefully coted. Sometimes we find a general congruencion of movement combined with imported expansion of the chest-wall. This absormality indicates a pressing want of air from some impediment to the efficient expansion of the important of air from some impediment to the efficient expansion of the important of air from some impediment to the efficient expansion of the important of air from some income in cases of catastrial presuments, in advanced phthisis, and in double pleuristy and hydrothorax. When unintered, it may be produced by one-sided pleuristy, presumotherm in very my constitution in the childs, extensive fibracial inducation, or condensation of large

from a former pictures with firm plenns adhesions.

In early life the thoracic walls risks resultly to the pressure of the elternal six, and this planey is especially noticeable in minute and riskey
children. Consequently in them dysphore is often indicated by narrow
less retraction of the chest-wall in implemtion. This retraction is easily
in the infra-minutenest region, and in pronounced cases may pessen a
deep horizontal furnew across the base of the chest at the level of the insoform cartilage. If the retraction is limited to this part, it indicates in
most cases a subsets of the inferior lobes of the lungs, which are usualciently filled with air; but if the ribs are very soft from rickets, the depression may be noticed in ordinary respection although the lungs are
seend. Sometimes the soft parts of the chest also sink in. The interestal spaces are hollowed; the supernhermal potch and suprachability ques-

are excented; and if the dyspaces reach an extreme degree, the lower half of the sterness with its attached cartilages is depressed into a deep pit at each inspiratory movement. When the estruction is thus pronounced, there is usually an impediment at the upper part of the trackes. Betraction to this degree is seen in membracous and stridulous laryugitis, in astroxing of the glottis from any cause, and in cases of ledgement of a larger substance in the upper part of the windpips. Still, even in some cases of pleurisy with effects, marked retraction is seen on both sides of the chest although the impediment to full inspiration only affects one long.

Enlargement of one side of the chest can sometimes be detected by the spe; but it is more accurately estimated by the cyrtometer.' A tracing made from this instrument upon paper shows immediately if one side of the chest be larger than the other. A characteristic sign of pleuritic effu-

sion is dilutation and segments of outline of the affected side.

Unilateral shrinking, from fibroid underation, or old pleurisy with firm

adhesions, may be also readily estimated by the same means,

Deficiency of novement of the chest is sometimes better appreciated by the Anast than by the eye. The hard also detects eibration of the chestwall, if this be present. In children, however, there is scaled a normal fremities when the child speaks or cries; for in the high-pitched notes which alone escape from the childish largest the vibrations succeed one mother too rapidly to be readily perceptible by the hand. Consequently, uninteral absence of this sign, which in the adult is an important means of distinguishing between consolitation of the lung and laquid effusion in the pleams, fails us in the case of young patients. Even when detected, rosed fremities furnishes no certain indication. If present on the sound side, it may be felt strongly over a liquid effusion, for the vibration is readily conducted by the thomesic wall from one side of the chest to the other. I have known it to be felt strongly on the affected side in a case of recent shootypion of pleasitic fluid, although shoots absent on the sound half of the chest; and again, in a case of apparently exactly similar kind it has been completely absent over the scat of disease, although present elsewhere.

A thenchal or friction fromities is much more common than a vocal editation in the young subject, but the sign is of little value. Finetration our sometimes be discovered in the interspaces in cases of pleuritic effusion and is a valuable sign of the presence of fluid. To detect it, a finger of each hand should be placed at the two extremities of the same interspace. The impulse of a gentle top is then often conducted distinctly through the

finial from one finger to the other.

The exact site of the spex-beat of the heart should be always nacerteined, as this may be greatly influenced by disease in the chest early. In young children and infants the normal position of the heart's agen is nearer to the left sipple than is the case in the adult. This is purtly due to the position of the nipple, which is placed relatively lower than it is in later life. In many children, instead of lying over the fourth sib it is in the fourth interspace or on the upper border of the fifth rib. But in addition to the lower position of the nipple, the heart itself is relatively smaller or seems to be higher in children, especially during the period of infancy.

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[&]quot;A perfectly efficient continueter may be made by taking two pieces of soft metal, without synthesis, such as composition gas rebing, drawn out to one-eighth of an lack, and uniting them by a piece of canabihous taking.

Others the uper will be found to best in the fourth interspace, exactly on

the site of the nipple.

Discusor of the heart-walls of course influence considerably the position of the spey-best; but when the organ is boulthy, the position of ris met may be altered by morbed conditions in neighbouring parts. Effects into the chest cavity causes displacement of the heart's aprix. According to the side affected the heart may be pershed considerably to the right or to the left. In cases of left picurisy with copious effusion it is not uncommon to find the spes-best of the heart in the epigastrion, and sometimes the pulse our be felt to the right of the sternum. Cardine displayment does not, however, always result from effusion into the please; and therefore its absence must not be taken to indicate that the physical signs are capitle of another interpretation. If adhesions have formed between the perioddram and the left plears, the heart is held in place and council be paded made by the effusion. The position of the heart may be also altered by contraction of the lung on one side, but in this case the heart is days towards the affected part. In fibroid induration of the lung, disease on the right side moves the heart to the right; disease on the left side dress the argue upwards and to the left."

Besides the position of the heart the cenet level of the liver and splers should be noted, as the position of these organs may help us to a readssion in a doubtful case. These viewers are often sensibly displaced by the pressure of a liquid offusion in the chest, while displacement of the liver by the bulging of a crospous paramonia is so ture as to be a clinical emosity. If the lung to contracted, the liver or spless is drawn upwards

into the cleat.

Procession of the elect in the infant and young child should be conducted with deliberation. If care be taken that the hands are perfectly warm, and that undue violence is avoided, the process seldon arouses my special opposition. It is sometimes reconstructed to reverse the unitary arrangement and practice associatation before supplying percusies, but

this inversion of the enstonary rule is at least unsecounty.

In the young subject, except perhaps in the new-born infait, the resome cost the chest is greater than it is in afterdife; and the percentage tests obtained over an area of consolidation is often so modified by research ance from healthy times around that dalness is only imperfectly marked and may escape the notice of an augmentized car. Percussion should be mediate; and it is advocable always to use two fagors in striking the foger placed upon the chest-wall. By this means, without employing unlist force, a larger bade of sound is elicited than if the chest is struck with resfinger only, and dulness, if present, can be more readily appromised. As we proceed we must be careful to make constant comparison between itsfriend parts of the chest-between opposite sides, between the how and the apet, etc. To make the comparison on accumte one the same period of the respiratory movement should be chosen for striking upon the fapte; for if one part of the chest be peremond at the end of an inspiration end another at the end of an expiration, the difference even in a leading deal may be considerable. When the consolidation consists in scattered no dutes, as in the beginning of estarrial premions or in locality colleges, deiness, which escapes the car when percussion is made in the enlawy mounter may often be detected by using "broad pergussion," i.e., by strik-

Propincement in the same direction repeateds and to the 3-ff) one to a computer of enlargement of globulant regard or distinction of the protocol sarity by Said.

ing with three fingers open three fingers placed upon the electorall as plexmeters. By this means the sound is collected from a larger area of lang-

tions than if one finger only were employed.

But besides the character of the sound elicited in procession, it is unportrat to attend to the degree of resistance of the sheet-wall. The resistarea to the percussing finger varies greatly in different cases and is a sign
of no lattle importance. In the consolidation of procuments and in that
of palmenary atelectasis, when the collapse occupies only a superficial layer
of these, resistance is sight. In more extensive collapse, as whan the condensed tisone embraces an entire labe, and in fibrost industries of the
lang, the resistance is greater; but the maximum of resistance is reached
in cases of circlesis of the lung, with superaided estarrial procumous, and
in pleuritic efficient. The resistance is here extreme, and the sensation
numeral to the finger is that of percussing a thick block of wood. It is
very important to educate the sense of souch so as readily to appreciate
the sense of resistance, as this family is a great addition to our
resources in the matter of singularies.

In percussing the super-spinous fosce it is very necessary to see that the massics of the shoulders are equally relaxed on both sides. Elevation of the shoulder, or a cramped position contracting the muscles of one side, will modify the percussion note and make the sound more or less dull, although the lung is perfectly healthy. If an infant be placed in his nume's arms in the position already described, and an older child be made to sit with arms folded, shoulders depressed and back slightly bowed, the resalls of percession may be depended upon. Too much stress should not he laid upon slight differences between the two sides. A temporary collapse of the air-cells at the apex is not unecounce from imperient expension of this part of the lung, and therefore anglet dainess noticed at one visit may on the next have completely disappeared. There is also a special asserts of error in percussing the posterior bases of the lungs in clafdren which it is important to be aware of. In young subjects the liver is relatively large, and rises higher on the right side of the chest than it does in older persons. There in therefore normally a certain duliness of percussou in the right infra-simpolar region. This dallness is more extensive in sense healthy children than it is in others. We may recognise the cause of the modified note by remarking that the breath-sounds at this point, although weak, are perfectly healthy,

Special varieties of the percussion note have little or no diagnostic tube in young subjects. The tubelar or tracheal) note is often obtained in turious states of the lung-tissue, and is not characteristic of any special condition. The "emeked-jar" note is a natural phenomenon in early life if the yielding chest be percussed during expiration or when the mouth is

tren.

In searchiving of the chest, however young the child, the atchoscope should always be used. This instrument is even of greater value in the young subject than it is in the adult, for the clean being smaller, it is more important to limit us marrowly us possible the area under investigation. I have rarely known children object to its employment if the instrument had been first placed in their hands and spoken of us unimpost. Indeed, the use of this familiar word usually awakens their interest and actually facilitates the countination.

In the normal state the breath counds are coarser and hursbor (puscile temperation) than they become in older persons, and this harsborns in cortain patients is so pronounced that it is not unfrequently nestaken by an

inexperienced observer for a sign of disease. The harsh character of the breath-sound is especially marked at the spices, and the expiration at this part of the long is often prolonged without the peculiarity being an above. mal phenomenon. Conduction of sounds from the pharyna and tracks to the spices is especially common, and it is not more to find the requiretion at the supra-quinous foods curiously loud and hollow or blowne. although the lurge are healthy. This hollow breathing is no doubt on ducted from the threat. It is often a sign of enlargement of the breechial glands, these bodies forming a medium of summanionista between the windress and the wall of the class. It must be heard, however, in cases of enlarged tonsils, and is sometimes present, while the mouth is closed, in shildren in whom no other morbid condition of any kind our tediscovered. In such cases it is greatly modified in character when the mouth is open. The source of this variety of blowing breathing can usually be detected by noticing that it is bean equally plainly at both apiece, is chiefly marked in expiration, and is accompanied by no ricochisound or any dulaces of the percussion note.

Weakness of the vesicular moreous is much less courses as a negral condition than lossiness of the breath-sound. It is, however, present in some children as an individual peruliarity. If general over both sides it is a sign of no importance. If limited to particular spots, it is of greater moment, and when noticed at the base of one side should not be disregarded. It may be an early sign of plearies or may indicate collipse. At the spices it often arises from insufficient expansion of largetises, and may be of trifing consequence. In such a case it usually passes of

quickly, and at the next examination may to longer be detected.

The readiness with which sounds are conveyed from one part of the chest to another is a common source of error. Thus, sounds generated at the base of one hing may often be plainly heard at the corresponding part of the other and healthy lung. In cases of dilated broachus from filevial induration it is not uncommon to find enversous breathing with southle gargling rhouchus at both posterior bases—on the sound as well as in the affected side. So, also, a subcrepitant rule developed in one larg may be plainly heard on the opposite side, perhaps over the site of a localist pleurisy or collapsed lobe, and give rise to much peoplexity. In these cases the origin of the transmitted sound can usually be detected by action; that the quality and pitch of the conducted breath sound or rile occurrily that heard on the affected laid of the chest, only dissipated in intensity, the sound is identical in character but weaker in force. This is easily a ever the case with sounds generated spontaneously in two different spots.

Breathal, blowing and cavernous breath-sounds are produced in the siren by the same mechanism which gives rise to them in the shift, and correspond to much the same conditions. In the shift, however, yearing thes in this respect are sometimes noticed. The morbid quality confined upon the breath-sound is often a step in advance of that band under similar conditions in the adult. Thus, averages breathing is near the a sign of neare solidification of tissue, and is frequently present when the lung is compressed by pleuritic efficien. So, also, the anglectic breatsound with tinkling resonance of the unice or cough is almost always the consequence of a large cavity or great dilutation of a broatins. It is heard in cases of phthisis, of circlessis of the lung, or of subscate causals presented. Parementhous, to which cause it is almost solely energin the adult, is a very rare condition in the child, and the nortist sign on soldon be attributed to this cause. Although the suscribatory sounds are frequently magnified in the child, it sometimes imposes that the contrary condition is formal. A patch of concollution, if covered by a layer of healthy lang-tissue, may give rise to no definess or alteration of breath sound, and a bronchophonic resonnice of the voice and cry may be the only sign which betrays its existence. In crying infants the intensified vocal resonance is an important test of consolidation. If the resonance have an apoptonic quality at is characteristic of moderate offusion.

The experiments of the chest should always be as complete as possible. It is not enough merely to examine the posterior part of the thorax, trusting that if this be healthy the anterior part is healthy too. A patch of prospose presences or a localited pleursy may occupy any part of the larger chest carrity. Either may be confined to the spex, may be under one arm, or may be found seated unteriorly or laterally as well as behind. If, therefore the front of the chest is left unnoticed, we may overlook dismost which closer examination would have discovered. Even if the child any during the operation, much may still be learned. The cry usually ceases each time the breath is taken in, so that impiration is antible. Its quality can therefore be ascertaized at this time. Moreover, as the chest is expended deeply after a preforged crying expiration, the sir-cells are fully induted and few adventitions sounds can compared our notice.

CHAPTER IL

LARYNGITIS.

In the linear may occur as a simple enturn of the larger or as a more avere inflammation resulting from a burn or scald. In these case it is of course a primary lesion. It may also occur secondarily in a consequence of a constitutional disease, such in tubercle or syphilis. There is a special form of the primary effection which is accompanied by spasm and is peculiar to early life. This complaint is often confounded with membraness croup, and is the "entertial eroup" of the older writers. It is solden a trial disease, although it produces very alarming symptoms. In the powent chapter three varieties of largegitis will be discussed, viz. simple largegitis, studiobuse largegitis, and tubercular largegitis. The lesses which affect the larger is cases of inherited syphilis are referred to elsewhere (see page 204).

SIMPLE LABYNGITES.

Grantion.—On account of the scantilveness of scrofulous chaldren to changes of temperature and their liability to enturn, laryngitis is not common in them then it is in others who are free from this unfortunate die position. In some the laryny seems to have a special proneness to affer in the rold or changeable sensons of the year. No period of chaliboot is exempt from laryngeal catarris, for although the disorder is seen often seem in children over six years old, it may be met with an early as the end of infancy. In infancy, however, the complaint in the simple form is comparatively rare. At this period havingitis is commonly the consequence of a application to the Amongst the children of the poor severe laryngitis from barns and walds is sometimes met with. This form of the disease is the most confined to children between two and three years old, and is due to an attempt to drink water from the sport of a kettle as this stands sinmering by the side of the fire. A violent inflammation results from the accident and may quickly end in death. An equally severe largagitts with sedema of the glottis is sometimes met with us a secondary affection follow ing serious scate discuss. It may occur as a sequel of small-per, ergoipeler, or typhool fever. (Edema of the glottle without inflammation is also sometimes a symptom of scute Bright's disease.

Chronic laryngitis is less common than the neste uniety, but some times occurs in weakly children as the result of an acute attack. It may follow measles or membranous croup, and is upt to prove obstinate.

Murbol Justicery.—The mircons membrane and submircons fisms become congested and ordernatous, and their colour is reader than in built in cases of simple largentitis the change is probably confined to the epglottic and any-epiglottideon folds, leaving the true worst cords ministral. Some thick uncons is secreted. Ulcoration is very rare in early life, and

probably never occurs in the primary form of the disease.

In the severe larying ites which is the result of a scald the wift polate and fraces are white and swellen; and the epiglottis and parts around are thickened and congested. A so-called false membrane often forms upon the surface. This to the eye appears to be identical with the false memheres of diphtheris, but is said to differ from it in its microscopical classarters. It is probably, as Dr. Wallace long ago suggested, the natural

spiths had layer altered in structure. Samptions. - In the most form the child is heares and soon loses his voice more or less completely. Has cough is hourse and infrequent; sometimes it occurs in puroxysms. There is little or no fever, and the breithing is not interferred with. If the besessness do not precised to actest aphonia, it is often more marked in the evening. The cough, too, is generally worse at night when the child goes to bol. The houseness of the voice may be only noticed when the child is crying. If the pulsent be kept in a suitable temperature, the symptoms of estarth subside after a lewdays, and schlom last longer than a week. If the indisposition is lightly treated, and measures are not taken to protect the child from further exposure, the complaint may become more serious and may be complicated with spasm (stridulous laryngitas).

The more storic variety is well illustrated by cases of scald or burn of the layer, although, as has been said, the affection is sometimes due to

tepel current

Immediately after the scald the child complains of pain in the threat, and this part on inspection is seen to look white and shrivelled; but there is at first no difficulty of breathing and the largex seems to have excepted. The patient screens violently and will not attempt to swallow; but after a time the immediate effects of the accident appear to pow off, and when put to bed the still falls quietly mices. After a few hours, however, usually from three to six, his breathing is noticed to be noise and whistling. Laryagitis has now begun. The respirations become laboured and rapid; the face is pale and tinted with lividity about the eyelids and mouth; the pulse is small and feeble; the skin is cool; the extremities are cold; and the child as drowey, although he can be roused with difficulty. If at this stage the finger be passed into the back of the faures, the epiglottis will he felt hard and excilen to the shape of a geometerry or small marble. There is recession of the soft parts of the chest in inspiration, and maemmination detects someone and sibilant riles all over the lange. There is no dulness on percussion.

After a few hours all the symptoms become aggravated. The breathing is more and more laboured and "croupy," the laryax rises and falls rapidly, and at each inspiration the soft parts of the shest—the intercestal spaces, supen-chricular force, and the epigastrium-sink deeply in. The child lies with his head retracted, his face swollen and livid, his eyes mjected, his nares acting, and his mouth open, unking convidence gasps for breath, His extremities are cold, and his pulse is often too frequent and feeble to be counted. Although only half concrious the child is much agitated, toming his arms about and showing signs of the greatest distress. Perensured of the lack usually detects some want of resumner, and much large building is heard in the air-tubes. Sometimes there is local duliness from collapse of lung. In this state the child may sink and die slowly, or

expire users anddenly in a convalsive fit.

The above is an aggregated case, but unfortunately far from an uncom-

men one. Death may occur as early as twenty-four hours after the actident. The end is not, however, always reached so rapidly. The child
may linger for two, three, or four days before he finally sinks; or life may
be prolonged to the end of the week. The duration depends in great
measure upon the degree of interference with respiration and the patient's
capacity for taking nouralment. If the orderns of the glottis be less complete, the breathing after being laboured and strictulous for twenty-four or
forty-eight hours, with sizes of deficient a ration of the blood, may become
casier, and then gradually return to a normal state. The voice is very
hourse and the cough "croupy." In these cases the dyspicer rates in
degree from time to time, being subject to occasional increase when the
child is distressed or made to sendlow. After the constitute of the more
unipout symptoms the voice may remain hourse and the cough be occasionally "croupy" for some days.

A little boy, aged from months, was brought to the East London (hildern's Hospital at one r.u. On the previous night the bed on which he was lying had caught fire, and the child, who had been placed on a waterperof cloth, was surrounded with flame and snoke. Happily he was quickly resented, although not before the polliness had been nearly destroyed. When taken out his body was blackened with the snoke. Soon afterwards his breathing became deficult, and at times the mother thought he would

be sufficated.

On almission the skin of the arms was seen to be tinted brown from the action of the heated sie, but there was no external sign of burn. The infant's breathing was laboured, and his cry hourse and weak. At each inspiration the soft parts of the chest receded deeply. The face was desky, the more noted strongly, and the external jugulars and superficial was generally were unusually vasible. The faces looked red and sweller. Temperature, 98°; pulse, 160; respirations, 72. In the evening the temperature rose to 100°; pulse, 140; respirations, 80. The child slept tinly well in the night, and in the norming expectorated a piece of membrane one inch in length and a quarter of an inch broad. It had the collinary maked-eye appearance of false membrane. The next day the teenthing we easier and the lividity of the face less. Two days afterwards eigen of pneumonia were discovered at the left back; but this discuss ran a favourable course, and in about ten slays from the time of the accident the child was convolutescent. He never had any difficulty is smallowing. He was trented with bot linesed-meal positions and a saline mixture containing small doses of antimornial wine.

In cases such as these, if transportant has to be performed on account of the intensity of the dyspaces, the patient often dies from a secondary inflammation of the lung. The ordinary non-transmatic larguists is the child, if at all severe, is also usually associated with bronchitis, praumonis,

or plearies.

The chronic form of laryngitis is semetimes seen in consection with foliacular pharyngitis. It is indicated by an altered quality of the miss, which becomes thick and voiled, and is semetimes quite hours in the exting. There is also a hard cough, which may be purocysmal, and is often accompanied by pain shooting up into the sirles of the head or the sus. I have occasionally not with a simple change laryngitis unconsisted with any abnormal state of the fonces, and apparently not the consequence of a constitutional exchanic. One such case, occurring in a child aged one per and eleven months, will be afterwards referred to.

Dispasses. The simple form of the disease, where there is such

horseness of the voice and cry, a thick cough, and some redness of the fuzer, without fever, or with only moderate pyrecus, cannot be mistaken. If the symptoms become more urgent, and there is laboured breathing, presmouth and broughttis may be excluded by the absence of the characteristic physical signs about the large, and the normal or only slightly elevated temperature. Still, it must be remembered that these cases, whether due or not to a transmitte cases, are often complicated by assist chest disease.

In the case of scald of the laryax, the history will usually be sufficient to deside the nature of the illness. It must not be forgotten that in this excity of laryagitis the symptoms sublom come on directly after the accident, but that there is almost invariably an interval of some hours before the signs of dyspasia begin to be noticed. In every such case, then, we must be on our guard, and must not conclude that all danger has passed

because the child appears at first to have escaped serious injury.

In epidemies of diphtheria a slight scald of the largex may predispose a child to fall a victim to the symotic disease. Mr. Parker has published the case of a little girl, aged three years, in whom "crospy" symptoms came on three days after an apparently trifling scald of the threat, and in spite of trackectomy the patient died on the sexth day of the illness. On examination of the sir-pressages, the epiglottis and any-epiglottisean folds were covered with membrane; the trachest mucous membrane was intensely mjected and coursely granular in appearance, and this condition was seen to extend as far as the tertiany broachi. Pieces of thinnish, red, well-formed membrane were also found on the pluryux and in some of the tabes. In this case the illness came on at too late a period after the accident to be fairly attributable to the scald; the symptoms were those of largeged dipitiheria, and the automical characters were indicative of a specific and not of a simple inflammation of the larges and teacher.

In all cases of chronic hourseness it is as important in the child as it is in the adult to use the layagoscope wherever practicalls. Children, unfortunately, are usually tromblesome subjects for this method of investigation; but if the child is old enough to understand the object of the enmination, we can often, by personerance and by making him suck lumps of are before the instrument is applied, succeed in getting a view of the vocal cords. By this means we can sometimes exclude the presence of the use inflammation and obtain a valuable hint for treatment. It must be remembered that hourseness may be the consequence of the imperfect approximation of the usual cords. Dr. Vivian Poore has referred to the one of a hitle boy who had been long under treatment for layagitis. In this case the hourseness was found by the layagoscope to be due to excessive means of the larger, with failure in the power of the abductors; and fresh air, good diet, and from soon restored the last to health.

Chronic largueitis must not be confounded with the alteration of voice which occurs as a consequence of enlarged and cassous breachial glands. In that discuss houseness is a late symptom, and does not appear until general pressure signs have been developed in the chest (see page 182).

Sometimes hysterical aphonia is found in girls. It is distinguished from chronic largengitis by the history. It begins sprite suddenly and is at

one complete. Equally suchealy it subsides.

A girl, between cloven and twelve years old, was under the cure of my colleague, Dr. Donkin, in the East London Children's Hospital. The patical was one of fifteen children, and there was no neurotic tendency in the lamly. One shild had died of crossp, and the girl horself had laid a "eroupy" cough up to the age of seven years. She was of healthy appearance and seemed very intelligent. Twelve weeks before her administrate had been called in the narrateg and had answered in her usual very; but when she was dressed it was found that she had complete spheric. Her breathing was natural, and she was not subject to attacks of drapms. She had no cough or soreness of the threat, but there seemed to be one tenderness at the angle of the jaw. Her voice was quite whispiring but she could hingh londer than she could talk. She did not appear to be troubled by her infirmity, but was anxious to get well on account of her education.

A galumic current was applied to the larger. The girl cried loady during the operation. After a second application of the same kind the

voice smillfully returned; and she never relapsed.

Proposed.—In uncomplicated cases of simple largagitis, upless the inthemsetion be due to a transmatic cause, the child almost invariable receives. In the transmatic variety the prognosis is very serious. In case which are complicated by some nexts lang affection the prognosis depends

upon the pulmonary rather than upon the bryugeal complaint.

Treatment.—In ordinary simple larguagitis the child should be kept in an equable temperature; his throat should be enveloped in cotton cooler a cold-rester compress; and inhabition should be prescribed of atom in-prognated with tracture of benzoin in temporalist to the part of being unter. The bourds should be releved by a necessial purpo, and if there be much oppression of breathing, an emotic should be ordered of spouration wire. Afterwards, a saline dispheretic can be given containing free or tree drops of antimonial wires to the dose. A mustard foot-both a sloweful. If the cough is troublesome and disturbs the rest, small dose of purposite may be added to the mixture.

In severe cases, where the dyspaces is distressing, a blister may be applied to the neck below the chin, or towards the top of the sternate. The child should be placed in a tent-bodstead, as in diphtheria and the around the patient should be kept most by the steam bods, as recommended for that disease. The general treatment will depend upon the long affection, which in these cases usually complicates the largeritis.

In the violent and distressing cases which result from a scale of the globia eracgetic treatment is required, as from the moment when the dyspaces becomes argent the life of the child is in the greatest danger. Dr. Bevon, of Dublin, after considerable experience of this form of discuspowerfully advocates a seturn to the old treatment by repeated does of calcused. He shales that if this plan be adopted, immediate relief to the symptoms is noticed directly green stools begin to be passed showing that the system is under the influence of the drug. Dr. Bernn gives a grain of the salt every half hour, and recommends that this medicates be begun directly the child is seen after the accident, without waring he laryngeal symptoms to declare themselves. He greatly prefers this mathed of frontment to any mechanical recusares for admitting or into the least. as these, he says, are almost invariably followed by death from pregression With our improved methods of after-treatment the operation of trads ctomy is, however, less often followed by fatal consequences than was feemerly the case; and if the dyspaces is urgent and threaters life, I should not insitate to advocate the procedure, putting the child afterwards in a tent-belistend in a warmed and moistered atmosphere.

The calcinol treatment certainly seems to offer good results. In such of Dr. Bevan's cases the patient took between fifty and sixty grains of

calousd; and of four children treated in this namer, although the symptons were excessively severe, all recovered without any sign of having been injuriously affected by the remedy. In addition to giving caloued by the mouth, moreurial immetious were used in the worst cases to the skin; a few leveless were applied to the upper part of the chest; and the lowels were relieved by a copious enems. In each case, too, the treatment was begun by an emetic to clear out the stemmels. Dr. Bevan states that given stocks may be expected in from eight to twenty-six hours after the first disc of the calouel.

It is important to support the strength. If there is total inability to smaller, the patient must be fed with white-wine whey by the stomach-

tube passed through the nose.

In cases of chronic laryngitis the throat should be brushed every two or three days with a strong solution of perchloride of iron. A little boy, aged one year and cloven months, was under my care for chronic houseness of three months' standing. The child, although assemic, had a locality appearance, and there was no history of appliches or trace of the discuss about the body. He was quickly cared by the application to the larynx every third morning of a solution of perchloride of iron in phyceriae (two dractims of the strong solution to the ounce). The application caused no special or other uncomfortable symptom.

Iron and cod-liver oil see useful in these cases; and the throat may be

painted externally with tineture of sodine.

STRIDCLOUS LARYNGITIS.

Stridnless laryngitis (false crosp, enturded crosp, spessestic laryngitis) is a common affection in early life. For a long time it was confounded with diphtheritic laryngitis, and no doubt a sharp attack of laryngisal coturn, with spasm produces sufficiently serious symptoms. The discuss

however, is rarely fatal.

Canonton —Strictulous laryngstis is especially a disease of childhood after the period of infancy has passed, for it is comparatively rare under the age of two years. Between the second and seventh year the disorder is common; but after the latter date it again becomes exceptional. I have not with it, however, as late as the fourteenth year. When it occurs in the course of the account year the patient will be usually found on examination to be the subject of rickets. The complaint appears to be predisposed to by an hereditary spannodic tendency; but the patients are not necessarily in any way feeble or under nearished. As a rule, perhaps they are sturf; looking and strong. Boys are attacked twice as often as girls; and the affection is frequently seen more than once in the same individual; indeed, it may be said to have a tendency to recur.

The exciting causes of the complaint are these common to largueed enturis. The affection is constitutes an early symptom of measles and whooping-cough. It may occur as a complication in the course of the latter, and occasionally returns under the influence of a slight shill after

the attack of pertuous is at an end.

Morbed Austrony.—In the rare cases where death has resulted from this complaint the glottis and worst cords have been found little altered, to more or less uniformly reddened. Sometimes they have been slightly scolles. An excess of mucus has been usually present. It is stated that small linear ulcers have been sometimes noticed on close inspection of the total cords. Symptoms.—Stridulous largegitts consists of a ratural of the larger with supersadied spans—the spasmodic element being probably the case-superse of special nervous exceptability in the indistinual patient. In some children (and these are usually rickety infants) a very triffing degree of catarrh way induce space. These cases are very mild as a rule, and quickly subside. In older children the catarrh is more serious. The complaint then lasts longer and is accompanied by more violent symptoms.

In the millest form of the complaint the pulmonary estants is also very trifling. The child may be put to bed apparently well, or with many n elight cold. About eleven or twelve o'clock he starts up saddenly from his sleep with a hourse, burking, sonorous cough, and a loud, whistling, support to his breathing. It will be noticed, however, that the arrithmen character is confined to the inspiration, and that the expiration is shart and comparatively someless. The inovenents of the chest are laborard and violent, the soft parts sink in at each inspiration, the narce set, and the eyes are staring and frightened-looking. If the impediment to treating in great, the feet becomes field, the eyes are injected, and the child is successful; restless and agitated. His voice, however, remains hourse and load. It is rarely weak, and only becomes suppressed and whappering in cases of exceptional severity.

The second lasts from a few minutes to half an hour, or even longer, for sometimes, after appearing to relax, the spaces becomes again distressing. In the end it subsides completely and the child falls asleep, but he may again be roused up by a milder seizure a few hours afterwards. On the following meeting he may wake up apparently well, or with some slight thickness of the voice and a lond clang in his cough, but these symptoms pass off after a day or two. In many cases the attack returns on the following night, and may be repeated yet a third time, but the symptoms are solden so severe us on the first occasion. During the attack the temperature may our to 102° or 103°, or higher, but in the morning is usually

nonnal.

In more severe cases of strictulens laryngetis the complaint does not pass off so quickly. The enture is often not limited to the laryne, but also occupies the brought. The attacks then accor not only at night but also in the drytime, and in the intervals the breathing is more or less opported and "croupy," and the voice and cough hourse. The dyspasse is these cases may be a very serious symptom, the child having the greatest difficulty in obtaining even a minimum supply of air. Indeed, in the west cases their the access the face is held, the hands and mile grow purple, the eyes become fixed, convoluing twitchings are noticed in the limbs, and an examination of the chest may detect agas of colleges at the basis of the large. In rare instances the patient dies suffocuted unless relicted. The complaint is accompanied by moderate fever which persists between the attacks, and the completion remains pule, with some findity about the lips, until the free pressage of air is again completely restored. An examination of the urine seldom detects albumen, but in the worst attacks, probably from renal composition, albuminaria may be present.

A healthy-looking boy, aged four years and two months, was taken ill on March lot with energing, coughing, and signs of tightness of the chest. The same night be was coused by a severe attack of dysprous, his breathing was oppressed and stridulous, and his cough load and clarging. All the next day his voice was weak and hours, and his cough backing and

hard.

When the child was seen on March 4th, his cough was hourse and

lead. The breathing was laboured, 46; the pulse, 140; the temperature, 101.4°. The skin was moist. The respiratory movements were very labourous, the shouldess rising and falling, and the soft parts of the chest and the epigratrium sinking in deeply. The chest was resonant, and the breath-sounds were load and enoring. One-seth of a grain of tarteste of anti-mony was given every three hours in a saline mixture.

On the night of the 5th the child had another severe attack of dyspaces. He was accordingly put into a tent-bedstead and the sir was kept moistened by the steam-kettle. The next day the cough was loose, and the voice, although loarse, was much stronger. The dyspace did not return, and the child was discharged convolescent on March 11th. The tempera-

ture remained over 100°, morning and evening, until March 9th

In an ordinary case of moderate severity the cough losss its hard, barking character after a few days and becomes loose, the heave-most of voice diminishes, and the child is soon convolescent. If, however, there he general palmonary enturely, any neglect may easily aggravate the case into one of broncho-passimonia, or in a weakly subject collapse of the lung may occur. In either case the child may die. Fatal cases of laryingitis strickloss are in the large majority of cases so complicated, for few children die from

the droppies alone.

In rare cases stridulous laryugitis, like laryugismus stridulus, may be accompanied by curps pedal contractions. A little girl, between long and fire yourself, was brought to me for contraction of the fingers, which had much starmed her parents and made them fear that the child was "going to be paralysed." The patient was much emacated from long-continued intestinal entarys, and had a pained expression of face. For a month she had had a cough, and at night was often roused by attacks of stridalous largugilis, in which respiration became noisy, and she seemed to have much difhealty in getting her breath. On examining her hands the tingers were form! to be unusually straight looking, the hands being lent only at the knackles. The shill could however, squeeze well with both lands. It was stated that the fingers would aften become quits stiff, with the flumbs turned rigidly into the palms of the hands. The girl was not rickety; her lungs were healthy; and there was no enlargement of the abdominal tegans or mesenteric glands. An iron mixture was prescribed, and the child was ordered some claret with her dinner. Under this treatment the resiptions soon subsided and the patient regained firsh and strength.

Dispussio.—Stridulous laryngitis must not be confounded with true tembranous croup—a disease to which it often presents a striking resemblance. A distinction between these two affections is of the utmost practical apportunce; for the operation of trachsotomy, which is especially indicated in cases of membranous laryngitis, is rarely if over necessary in the stribulous disorder, and if performed imports into the case an element of

durger which would otherwise be wanting.

In larguistic striduless the invasion is much more sudden, and the dyspuou at once attains its maximum intensity; indeed, if the attack be repeated it seldem reaches the violence of its first scores. The voice in take cross, although weakened and boorse, is rarely suppressed, and the child, if persuaded to exert lauselt, can usually speak fairly loodily. Even young children, although silent and unwilling to cry when much issupered for breath, if disposed to do so, can often cost a considerable volume of sound. The cough, too, is loud and clauging, and rurely assumes the maffed, whispering character so distinctive of membranous larguights Again, the strider of the breathing is chiefly marked to asspiration, the

expiration being much masor and comparatively missless. In file cross, also, there is no enlargement of the submaxillary glands, each as is up to occur in cases of membranous largugitis when there is any accompanying affection of the pharynx. An examination of the urine rarely discovers the

presence of albumen.

In all these features the stridulous estands differs from the members as influentation. In the latter the dysprova begins gradually and attains its maximum by degrees; the voice becomes entirely suppressed; the ough is a basese neaffled sound which is almost pathogusuosic; the strider is ne marked in expiration as it is in inspiration; and albuminuous is some times not with. Instly, in true membranous group the dipathering exadation can often be discovered in the plantury. Still, aborner of exadation is not to be depended upon as excluding diplotheris, for the menbeans may be limited to the air-possages, and Improveds are not always coughed up. In a doubtful use, where the symptoms of spannechelluragitte are exceptionally werers, the points to be relied upon for excluding dipleticritic group are: The severe and solden qued; the comparates absence of strides in the expiration, and the quality of the wire, which is not completely suffied or suppressed. The age of the patient is also of some practical value in diagnosis. In a child under tredre mently old, or over seven years, the case is easy unlikely to be one of strickless hrengths.

Laryngitis straduloss may be also conformiled with larynginess stratulus, with retro-pharyngoul abscess, and with uslema of the glottis. The distinctive characters of the first-manual complaint are elsewhere described (see page 271). Retro-pharyngoul abscess is at once recognised by the inability of the child to breathe when lying down, the increase to his distress occasioned by pressure on the laryne, and the presence of a swelling at the back of the throat. (Edoma of the glottis is usually the consequence of a scale or burn, or follows in attack of acute specific classuse; the distress is never continuous, without marked remissions in the dyspoon, and the

tlackered epiglottle can be felt with the finger.

Frequence—As a rule, the child has a good prospect of recovery, eva in serious cases, if the operation of tracker-bury be not performed. The runs urgent droption usually subsides under suitable treatment, and it is very rare for the child to die surfocutes. When the disease ends trially, the inferoverable issue is usually the consequence of an inflammatory complication. Sendulous laryngotic sometimes accompanies the case of a preservoir, or from want of proper presentions the tracked catacht my be allowed to extend into the finer tubes. In such a case the progress sent favourable, for attacks of sufficiention occurring in a child the subject of broughtits or passuments are necessarily dangerous. Still, even in these cases the child may recover, for often the spaces becomes less market when the inflammatory complication declars itself.

Treatment.—In the milder attacks of largingitis strickslows the child-should be at terce placed in a warm both (25° Pak.) for lifteen or treats minute, and should be made to remit by a dose of spectrumbin wins. Afterwards a small dose of chloral (gr. iij.—iv. to child of eighteen mouths old) may be given, with a few drops of sal volatile, to present a relapse in the course of the night. In the morning it is well to present a relapse in the course of the night. In the morning it is well to presentle a displacestic nichals (such as sink spectrumbins, Q.x.; hip, nonneces neethin, Q.x.; giverni, Q.x.; aq. ad 5 j.), to be taken every three or four hours, and to give directors that the child be kept in one mean of a suitable beaperstone. If the tongue is loaded, a grain of caloniel should be given with two grains of

Juliquine.

In the very severe cases a warm both is also useful. Afterwards the child should be placed in a tent-baltened in a warmed and moistened atmosphere, as recommended for membranous croup. An exactic in all these cases produces great relief. A temporaful of specicumlia wine, or a quarter of a grain of sulphate of copper, may be given every ten asimutes until the desired effect is produced. The exemited matters in all severe long to there is fever the child must be kept in bed, and while the voice. remains hourse it is wise to keep the mr moistened by means of the steamkettle (see page MG). Truelicotomy is much if over necessary in more spannedic larvagitis. The most violent attack of suffication selden fails to be referred by a searm built, an emetic, and steam inhulations. Graves plan of applying a sponge wrang out of hot unter to the nack, below the clain is also of service. It must not be forgotten to attend to the beverla, and a mercurial purge us a great help to the other treatment.

If the sposms return repeatedly, which, however, is neely the case if the above treatment have been adopted, an antispassaodic may be required. Chloral is pechaps the best, and may be grow to a child of two

rems of age in doses of three grains three times a day.

If my inflammatory complication arise, such as bronchitis, prounsonia, etc., special measures must be adopted as recommended for these diseases If the case be uncomplicated, displacestics should be given when the spann subsides, and the child should be treated for an ordinary pulmonary catarris, taking care to withhold all stimulating expectorants as long as the cough continues barking and hard. Sometimes a few drops of paragonic added to the saline expectorant mixture seem to aid its effect in reducing the hardness of the cough. All the time the diet must be regulated as directed

for palementary naturals.

In cases where the attacks of largrapitis tend repeatedly to room, endercorrs must be made to strengthen the chibband disminish has assecaptibility to changes of temperature. He should be dressed from head to foot in worllen underekthing; should pass much of his time out of doors; and should have a cold doorbe every merring, given with all the precauhions recommended in a previous elapter (see page 17). Moreover, as children with this tendency often have ould feet, care should be taken that the extremities are thoroughly warm when the child leaves the house. A little alcohol with the dinner is a useful medicine in these cases.

TUBERCULAR LARYNGITES.

In childhood the laryngest mucous membrane is comparatively rarely the seat of the gray granulation; for it is only in after-life that laryageal phthous becomes a common manifestation of the tubercular cacheria. Still, even at this early age tubercular greatules and alterations are occusionally present; and these usually occur in cases where the force of the disease is expended more particularly upon the lungs, the other organs

being comparatively unaffected.

Greation.- Ulcers of the largex are much more common than takeronly geneales without breach of surface. MM. Relliet and Barther state that they have only mot with a single case of taberde of the laryngual arrays membrane unaccompanied by alcomition, and quote a second from M. Founet, which occurred in a child of fourteen. According to these urthors, the ulcors are usually of small size, varying from the head of a pan to a large lental. They are circular and closely out, unless they occupy the vocal cerds. In that case they are more commonly out, with the long dismeter in the direction of the cord. These borders are this and reddish in colour, and their base is usually composed of the salemnous tissue—morely of the muscular fibres. The ulcers, for the most part are single, although semetimes more than one is present in the same case. The sent may be one or other of the vocal cords, or the posterior angle of the glottis, or the base of the epiglottis. The nuncous membrane is madtered or thickened; sometimes it is reddened.

The tracken and larger bronchi may be also the seat of altern, but may assuably the fracked mass one moss brance is norely reddened and thickened.

Savegrous.—The emptoms of the laryngeal complication are often indefinite. There may be merely some alteration of the voice, slight pair in
the region of the laryno, and if there is much swelling, dyagnon. The
voice is often thick and lunky; it is never who-point as in the afalt.
The cough is little altered, and has no special quality pointing to this particular besion. There is seldem pain or difficulty of derjutition: and the
pain in the laryno, if present at all, is rurely of much moment. The small
size and limited number of the sores is sufficient, no doubt, to account for
the absence of special symptoms; for in the adult, when aphonia is present
the ubcoration is generally extensive.

Dyspense may be a marked symptom. A little boy, aged two years and nine mouths, whose father had died of consumption, was admitted into the hospital, under my care, for difficulty of breathing. For six weeks previously has breath had been noticed to be short, and for a formight his respiration had been accompanied by a strider. For these weeks he had been unable to swallow any solid food, although he could take finnils with-

out difficulty.

On admission his despite was marked. At each inspiration the lover half of the broathone was lead deeply inwards, so as to larre a pit in the opignatium. At the same time the intercestal spaces and super-clatesiar hollows were markedly retracted. His narres worked, and all the accessory muscles of requiration were in strong action. There was some limited of the face, and the breath-sound was accompanied by a boarse strike. His voice was boarse, but not whispering. The cough was little affaired, and had no metallic or ringing quality. On examination of the class there we seem dainess at each super-spinous fossa, and much course building was heard all over both lungs. Temperature at 6 s.m., 101.6°; requirities, 80; pulse, 136. There was no albumen in the wine.

The boy was in the hospital a week. His dyspmen all the time rectinued with little change. There were no concerbations or remains. His temperature varied between 100.6° in the meroing, and 102° to 100° at night. His bowels acted twice a day, as a rule, although in one day is was purpod seven times; and he never complained of pain in the ablance until a few hours before the end. His death occurred quite smallesty. The child, after complaining of stormeth-acte, which did not appear to be severe, suddenly suck into a state of collapse, in which he died.

On examination of the body many ulsers were found in the illum, on of which had ruptured and caused profuse extravasation into the perturbationity. The ulsers were circular, and did not follow the cause of the treased, as in ordinary tubercular or scrofulous alcoration. The liver was fatty, but the abdominal organs seemed to be healthy. No gryp grands those were seen anywhere but in the lungs. These cogusts however, was stuffed with them; and there was some consolidation at the spires. The museous membrane of the largers and opagientis was encountedly smaller and

red, so that the glottis formed a users chink. No alterations were discovered in this part, and my notes make no mention of gray granulations about the largest. The traches was healthy, and nowhere was there say sign of false membrane.

In this interesting case the larger was the seat of severe chronic inflammation, and had the child lived a short time longer it is probable that meers would have formed in the glottis. As it was, the intestinal compli-

eation carried him off before my further charge could take place.

Dispossis.—In the chibl, on account of the extreme difficulty of using the laryngoscope, owing to the resistance of the patient, it is very rare to be able to ascertain by sexual inspection the existence of ulcers or granules on the laryngeal mucous nombrane. In children who have reached the age of ten or twalve years the instrument may, however, be sometimes used; but great irritability of the feaces usually attends any laryngeal catarrh.

and the attempt to inspect the threat his often to be also doned.

In esening to the conclusion that a child has tubercular electation of the glottis we must first exclude alteration from other causes. Syphilis must be set aside by inquiry into the family history, and special antecesdeats of the patient, and by careful examination of the body for signs of the inherited disease. We must also make sure that the shild has not suffered takely from any complaint which tends to give rise to chronic inflammation. te alteration of the larray, such as meades, small-pos, or attractions erosp. If all these diseases can be earlieded, and we find houseness of the voice and cough, with stridulous breathing, in a child who is cridently suffering from tuberculosis, we cannot but explain the local symptoms in the light of the general disease. A persistent, stendy despesses, without expossiontions or remissions, would add strength to the explanation. If, however, sufficiative attacks come on, such the child is first seen when suffering from more or less poroxymual dyspenses, an exact diagnosis may be very difficult. The history would, indeed, point to a chronic interference with the action of the glottis; but such interference might be produced by worty growths or polypi of the rocal cords, and without a laryngoscopic examination a diagnosis is probably impossible. Such a case as the following, for example, would give rise to great perplexity.

A little boy, four years old, but short for his age, and of rickety build, who had been treated for syphilis in his infancy, is brought to the isospital for difficulty of besulting. It is said that for four months he has been noticed to breathe stertorously and to have a hourse cough. The cough is wrose at night, and is often followed by voniting. The child's face is rather targed and congested and the jugular vents are tistle. On inspection of the chest it is seen that at each inspiration the ribs and lower half of the bread-bone are greatly retracted. At the same time the pulse fails in face, and there is a stribulous sound from the throat. Examination of the chest shows no sign of disease; resonance is normal, and a load stridor confucted from the throat is heard at all parts of the chest-wall. The heart's spex is in the normal site. An attenge to make a laryngoscopic examination has to be also aloned on account of the child's struggles.

Temperature at 9 a.u., 101.8 ; pulse, 140; respirations, 36.

After admission into the hospital the temperature for the first eleven days is over 100°, both morning and evening. The child is found to suffer from severe fits of dyspeace, which come on usually at night. In these ablacks he is excessively agitated, sitting up in bed and throwing bimself about his face gets livid and his lips are blue. He makes constant attempts to energh, mif to remove some electable, but the cough is very hourse

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and smothered. In one of these attacks the distress is so great, and the signs of approaching sufficiation so pronounced, that trackscooms is performed. After the operation the breathing is ewier, but signs of punumonia manifest themselves, and the child dies. After death as examinates of the largus discovers several warty growths attacked to the true soul cords. One of these growths is long and pedanculated.

In a case such as the above, if a correct diagnosis can be arrived at in the absence of a laryngoscopic commination, it can only be by exclosing but the elevated temperature would be an element of perplicitly, and would not be in favour of warty growths. A digital examination is of little value in such a case, for the growths, being scated on the true rocal code.

are quite-out of reach of the Singer.

Fragmone.—The prognosis is always undercurable, but the gravity of the case depends much upon the general discuss and little upon the keyngeal complication. It is only in cases where the inflammatory ending has almost occluded the opening of the glottis that any special danger is likely to arise from the condition of the largue. These cases, formutable.

appear to be very rure.

Treatment.—Little can be done in the way of special medication for inbercular laryngitis. The treatment to be adopted must consist of the measures recommended in cases of simple inflammation. The neck should be kept warm extermily, and inhalations of steam, needlested with the compound tincture of beautin, should be prescribed. If the cough is troublesome and disturbs the rest, small doses of landarum, morphia, or paregoric may be administered. Two to three drops of liquor morphia, with the same quantity of spirits of chloroform and ten of glycerine in a temporatular water, form a useful linetus for these cases. The general treatment must be that recommended for the constitutional affection.

CHAPTER III.

SATPURATION ABOUT THE LARYNY.

The formation of an abscess in connection with the larger is not a common complaint at any period of life. But the disease, when present in the child, causes so much interference with respiration, and produces symptoms which bear so close a resemblance to those of membranous crosp, that it must not be passed over without a weed of notice.

Three cases of supparation about the larges were published some years age by Dr. W. Stephenson, of Aberdeen. Two others here been placed upon record by Dr. John S. Perry, of Philadelphia. A few cases are also

emittered about in the various journals.

Chastice.—A state of feeble health appears to favour the occurrence
of the discuse, for the patient is generally weakly and escheric-looking.
In two of Dr. Stephenson's cases the skild was just consulescent from an
acute specific discuse (scarlatina and small-pox). In a case convated by
MM. Rilliet and Burther, under the name of submucous laryngitis, the bey
(aged four years and a half) was still in a weakly condition after an attack
of measles: A prelimmary period of ill-health is not, however, indispensable, for in one of Dr. Parry's cases (a little negro bully of four and a half
months old) the infant occured to be in prefect health just before the first
symptoms appeared.

Morted Austrony.—The abscess is usually situated at some point in the transchiste neighbourhood of the largus. In one of Dr. Stephenson's cases its sout was at the outer side of the right thyroid sartilage, laying here the upper margin, and extending to the superior evens. It had opened internally. In another a suc containing pas was seated in front of the thyroid cartilage, and extended apwards on each side as far as the apper margin of the also of the cartilage, the peach on the right side being somewhat larger than that on the left. In one of Dr. Parry's cases an exactly similar condition was not with. The thyroid cartilage itself may be creded and

roughouse and denuded of perichondrium.

Name of the symptoms produced by supportation around the larym ire very similar to those which arise as a consequence of retro-phatyaged abscess, for in both cases there is pressure upon the sir and food passages. There is dyapenes and laboured breathing; hourse, noisy inspimition, and increase of distress in the recumbent position. Swallowing is greatly impeded; the child, if an infant, refuses the breast; if older, he wises when an attempt is made to fares him to take neurodoment. An effort to swallow is often followed by cough, and an increase in the dyapness, with return of the fluid through the mouth and nose.

The most prominent symptom is the dysputes. The child's eyes are preminent and his face dusky. His testihing is hurried (40-50) and his turns act with respiration. If an infant, he lies back, with head retracted and the muscles of the nucha rigid. If able to sit up, he sits huddled together in his cot instead of lying down, and whospers if disturbed.

Each implication is accompanied by a load ratifling strader, and at the arms
time the soft parts of the chest are retracted and the opigastrian is
depressed. The expirations are short and comparatively noiseless. The
difficulty of breathing varies in degree. It is subject to experistions, daying which the shild is in the greatest agitation, and scenes on the point of
sufficiation. In the intervals, although quieter, he is still greatly distressed.

Anything which irritates or disturbs the patient, such as attempts to gove
food or medicine, encourages the attacks; and if he try to swallow, the
dyspinus comes on at once. The voice is almost suppressed, and the rey
is loanse or whispering. Cough is either absent or as merely hourse with-

out clarger. In one case it was parexysmal.

The physical signs of the closel are normal, with the exception of the load strator which is transmitted to all parts of the closet-well and quite obscures the normal vesicular norman. On evanuation of the threat the forces appear to be perfectly healthy, and the finger pushed to the back of the pharyax finds to tumour such as is present in cases of retropharyageal abscess. At first, too, the most currial evanuation of the neck may detect no deviation from the normal state; but after a few days a limit swelling may perhaps be discovered on careful inspection. In some cases the largue has been usually prominent or present out of the meant limit. The swelling is used of the cases appeared at some part of the posterior bestler of the thyroid cartilage, just in front of the sternomasteid naneds, and in two cases it spread to the front. In one instance it was noticed to become more pronument in expiration, and to recease again in inspiration. The swelling is not hard, and rarely fluctuates; indeed, as Dr. Stephenou remarks, "it may feel more like air than fluid."

If the swelling is punctured and the accumulated pas let out, instant relief is obtained. The dyspaces subsides and rapidly disappears; the child takes fixed without hesitation or difficulty, and the cough inproves. The relice may, however, remain feetile for some weeks afterwards. The duration of the disease is short. In all published cases the suppuration run as acute course, and ended fatally in many instances. As in the case of absences belief the plurynx, death may be the consquence of exhaustion, or the child may disc sufficiated in an access of

dyspacea

Degree it.—In reading the above description of the phenomena attenting upon supportation about the largus the resemblance of the disease, in its course and symptoms, to retro-pharyngeal abscess cannot full to be remarked. We find in each instance difficulty of swallowing, purcayered dyspuces and strictules breathing, and a marked increase in the child's distress when he lies down. In either case, too, the trackes may be pushed out of place and may be more prominent than natural. The chird distinguishing mark is the presence of a tumour in the fraces if the abscess is situated behind the pharynx; while if the suppuration occurs around the largest the fraces are natural.

The distinction between such a condition and membranous creep is described clear here (see page 594). It may, however, he here noteed that in children who are old enough to sit upright, orthopaces is a very chirateristic symptom of interference with the passage of air through the larger and traches from subsole pressure. In membranous croup no such symptom is noticed, for in that discuse there is no aggravation of the dyspion when the ridd is recumbent. On the contrary, he often breather more enally in that position. Again, the progression of the symptoms is more gradual in the case of abscess. The sterior comes on more slowly and increases in

intensity me the and increases in size.

Proposit.—The prospect of recovery depends upon the general health of the child, and upon the appearance of local swelling or fluctuation at some point in the front of the neck. If the abscess can be detected and its contexts eracinted, recovery may take place; but if the child be a feeble rachectic subject, especially if he be much enhanced by sleeplesoness and seint of food, the operation may come too late to save life. In this disease the prognosis is distinctly less favourable than it is in retropharyngeal abscess.

Transacal.—If the presence of an abscess about the larger be suspected, the throat abould be caredopad in hot positives, frequently changed, so so to basten the formation of matter and quicken its approach to the surface. If any swelling can be detected by the side of the thyroid cartilage, it should be parectured with a small trocar without reference to the absence of fractuation. Even if no swelling can be seen, in cases where the symptoms are very urgent and we feel strong suspicious of the formation of passin the neighbourhood of the larger, it is justifiable to make exploratory purctures. Some point on a line with the posterior border of the thyroid earlilage should be chosen for the operation. If the exploration be attended by no satisfactory result, and the symptoms continue urgent, trachestomy should be performed.

At the same time every effort should be made to support the strength of the child. Port wise should be given, or the brandy-and-agg mixture; and pounded ment made fluid with gravy or strong beef ten, eggs and milk, etc., must be administered in suitable quantities. If the child cumot smallow, he must be fed, if possible, through a stounch-tube introduced by

the ross.

CHAPTER IV.

Choupous PNEUMONIA

Characters or lobar precuments may be seen at any period of childhood, has in infancy is comparatively rare. Up to the end of the second year inflarmation of the long usually assumes the entarrhal form, and even in the third year pseumonia is more often catarrhal than crospose. After the third year both forms of the discuse are about equally common, and with each succeeding year inflammation of the long, if it occurs, is more and more likely to be of the crospose variety.

Consultion.—Of late years a tendency has been growing to look upon eroupous positionals as an across general disease, of which the pulmonary communication is the anatomical expression, and no longer to regard it as a tasee local inflammation. Some observers have compared it to across resumation and tensifities. Others, who see in the affection the effects of a special poison, have even placed it in the same class with typical free and

other similar specific distempers.

That the disease is a general one, with a marked local municipatition. scens to be evident, for the general symptoms are not proportioned in severity to the extent of Img surface involved; they may precede by some days any evidence of local mischief, and the highest elevation of temperature is often reached before the point of most complete consolidation is arrived at. Moreover, the character of the symptoms differs in many respects from the ordinary type of constitutional disturbance set up by a local injury : head symptoms are more common, sweating in more frequent, sual a herpetic eruption is an ordinary phenomenou. Again, the modul exustation, which is the chief Iscal expression of the disease, is of a kind peruliar to proumonia, and cannot be produced by ordinary inflammatory agency. Still, although the affection may be a general one, it does not follow, no some observers are disposed to believe, that it ought to be classed amongst the diseases which result from specific infection. There are as doubt some facts which seem to favour this view. Thus, premionis less been occasionally known to occur in epidemios, and in some outbrails facts have been noted which seem to point to personal communication if the disease by contagion. The illness sometimes appears to be preceived by a prodromal interval, and to pass through a stage of invasion below Iseal symptoms are manifested; it runs a definite, uniform course; in other accompanied by complications which assume different degrees of preinsuce in different outbreaks, and its type varies in severity, the rate of mortably being higher in some epidemics than it is in others. In all these features the disease accurs to incline to the class of acute specific malades. The question whether or not the illness can be set up by impressions of cold, is one of great importance, for if it can arise from a simple dail, dedisease can have no pretensions to be the consequence of a specific point There is a conflict of testimony upon this point. It is said that parents

ais is most frequent in the tropies, and diminishes in prevalence as the distance from this zone increases. It is not especially common is cold latitudes; and Koch in his cases failed to trace any relation between the attack and the external temperature. Other observers, however, have noticed a connection between the illness and meteorological conditions; and there is no doubt that in seasons where the temperature is changeable and the weather damp the disease is more common than at times when the temperature is uniformly high or uniformly low. Black states, as a result of his observations, that the conscidence of rapid atmospheric depression, a low temperature, and enden changes of temperature tends to produce the disease.

Perhaps in the present state of our knowledge it may be sufficient to class paramonia with toroillitis, and, indeed, it bears a great resemblance to that discuse in the conditions under which it appears to originate. In addition to cold, bad drainage seems to have a poteerful influence in exciting the mulady. Many mysterious cases of passumonia arising in schools have been finally traced to contamination of the air of dormiteries by sewergas, and lawe cented after measures have been taken to rectify the facilty condition of the drains.

Premionia sensitives occurs secondarily to other forms of illness Thus it may be a consequence of an altered state of the blood, as in the neate Schrie diseases, or may be due to imperfect purification of the IdooL. as in Bright's disease. In other cases, again, it may be a purely socidental

complication.

Lastly, although pneumonia often attacks children who are to all appearure strong and healthy, its occurrence, like that of other acots discuses. is becomed by conditions which reduce the strength and lower the resisting power. Therefore imperment of health must be looked upon as one

of the predisposing causes of the andady,

Morbod Anatomy.—The morbid processes which constitute an attack of preumonia are divisible into three well-marked stages. In the first—the stage of engargement-there is congestion of the capillary vessels which musty between the aircresions and on the minute broading and swelling of the alreadar epithetimu. The organ is heavier than natural, and darker in that. It still contains nor, and therefore erepitates on pressure although less perfectly than natural; but its substance tears readily, retains the mark: of the figur, and on section poors out a reddish frothy fluid from the thyided surfaces.

In the second stage the stage of red separation the already epithelim is swellen and granular. An exudation of the constituents of the blood congulates in the nir-vesicles. The alreoli and small air-passages connected with them are crowded with white and red blood corposeles. which distend these little easities and course complete consolidation of the lung. The affected part, therefore, is airloss and can no longer crepitate. It tears with the atmost case. Its bulk is increased; it enks in water; sail on section the surface is dryish and somewhat granular, although pressure enters a thick, burbid fluid to occe out. The colour is reddishtenun, startical here and there with gray. Usually the adjacent pleurs is also inflamed. It is opaque and congested, and adhering to it are patches of lymph.

In the third stage the stage of gray Aspatisation the colour of the diseased part of the lung becomes grayish or whitish-yellow. White blood corpuscles continue to excele into the sir-cells, and there is bendes proliferation of the alveelar epithelium; so that with the microscope we find spithelial cells, granule cells, and lencocytes. The fibriness evadation disintegrates, and the cells quickly undergo fatty degeneration. The organ is still heavy and nirless, and is very soft in connectors, so that a little pressure breaks it down. The cut or torm surface is but slightly granular.

and on presence gives out a puriform floid.

These enrious stages of the disease may usually be seen to occupy different part of the lung at the same time; for as the disease spreads from one part of the organ to another, it is for more advanced in the part first attacked. The extent of timue involved is subject to great variety. The affection may be limited to a small patch, or may involve a whole icle, or even the entire lung. It attacks the base by preference, but is tay from uncommon at the spex, repectably in the child. Usually the consolitation is contined to one side of the chest; but double preumonia is said to be more common in children than in adults.

The process of resolution in the affected part consists in a faite depenoration and liqueduction of the contents of the alreoli and small and the Thus softened and Equation the inflammatory products are reality absorbed or coughed up; the sireeds are freed, and the circulation through the capillance ramifying on the alwedar partitions is restored. Resolution is the normal and favourable termination to a crospous presurents; and if the illness be prinsry is the common ending in the child. In exceptional cases, usually when the disease is secondary, suppurction may occur with the formation of an absence, or the inflammatory process may pass tria gangrene. Still, gangrene is rare as a consequence of parametric; and probably power occurs as a result of the uncomplicated disease. It now, however, follow in cases where embeli derived from ante-mortem eletting in the right heart are arrested in the polinousry copillaries. If Bouillard's statement that a peculiar tendency to the formation of such clots is a common feature of the true programming disease be correct, it is surprising that the gargrenous change is not more often seet with. Croupers preamonin is not a curse of pitthesis. A simple unabsorbed conscisiation such as it retrieves after enterthal inflammation of the lang, rarely if ever results feren the croupous form of the disease.

On account of the apparent analogy between presumonia and the nexts specific discuses, pathologists have searched carefully amongst the merbil products in the lung for signs of nurroscopic organisms, such as low been shown to exist in cross of crysiquias. Friedlander, of Berlin, in searching amongst the filteinous effectives in the horochial tubes, and in exacting sections of the lung-tissue and inflamed places, found in each of eight cases submitted to investigation ellipsoidal microscopic which were coloured deeply by the artifact dyes. The organisms were found, as a rule, arranged in pairs or chains; but in some parts they awarmed in concesses aumbers, especially in the interior of the already and the lymphatic vessels. Each, Riele, and other observers have also described similar organisms.

Symptosis.—The oraset of croupeus persumonia is unidea, and is untily marked by signs of great perturbation of the nervous system. The shift is often convulsed, and the sciamptic sciences may succeed one apoller, with only short intervals of quiet, for hours together. In other case the patient complains of severe handsone and point about the creat. He comes repeatedly; shiners or covers over the fire; and towards the seeining may become definious. From the first the temperature is high, the thereeneder marking 10%—106°, or a still greater clevation. From the first, too cough is noticed, and is a source of much distress from the pain it excites in the closs. The cough is characteristic. It assumes the form of a short sleep

back, and in older children may be accompanied by the expectoration of a mosty sputum. The cheeks are brightly flushed; the eyes look heavy, and the face is distressed; the mores act; the tongue is thickly formed; epistaxis is a common symptom; and the weakness is often from the first a notable feature in the case. This weakness often amounts to marked museniar prostration. As infant lies quietly and takes no notice of what goes on around him. An obter child seems stupid, and often makes no reply to questions addressed to him, as to do so requires an amount of exertion to which he feels himself mequal.

As the disease goes on there is little alteration in the symptoms. The child lies on his back in his bed. He is very thirsty, but Ins no inclination for food. His face continues flushed, and often a patch of burges is seen on the upper lip. His breathing is hurried and short; and its rhythm is altered, the prose taking place at the end instead of at the beginning of impiration. This is probably due to an effort to suppress the cough-The permitar character of the cough has been already referred to. It score in short single lineks, one to each short inspiration; and these often

continue until the child serus quite exhausted.

After three or four days the flush disappears from the cheeks, and the face is left pale, with a little limitity about the sychide and month. The persons symptoms also subside, and the nocturnal delirium ruraly lasts larger than three or four nights. Usually the period of completion of the exulation is marked by a subsidence of the more severe features of the case. The temperature remains elevated, but the child looks less dell and self-absorbed; his expression of distress passes army, and he takes some interest in what is going on around him. The period of resolution is marked by a sadden fall of the temperature, which make below the level of bealth, and the child passes rapidly into a state of convalescence.

The more special symptoms will now be considered in detail.

Necessar symptoms are, as a rule, more violent at the beginning of the disease. Convarsious cense after a few hours, and although delinion may persist for several nights, it rarely continues after consolidation has been completed. Severe cerebral symptoms are said to be more common in cases where the open of the lung is the part to be attacked, but they are not limited to such cases; indeed, in children they are often quite as marked when any other part of the lung is involved. It is very common to find a pastmonia of the agen unaccompanied by any sign of nervous imitation; and according to my experience inflammation of this part of the lung, in the large majority of cases, runs in the shild an especially short and favourable toures.

When pervous symptoms occur the form they take is subject to considerable excity. In infinite there is usually great drowsiness, preceded, postures, by convulsions, and often accompanied by twitchings of the facial nameles and of the measures of the limbs. Sometimes the child churches at his mother's dress us if in fear of falling; and when the drowniness passes off he eries fretfully as if in pain. In an older child severs headache and delinion are usually the most prominent of the percous symptoms. Thus, a little girl, aged none years, came back from school complaining of headsele and pains in the chest and back. For the next two days she vonsited repeatedly, greated with the pain in her head, and was delirious at night, bring with her hand back and her arms up to her forebend. There was no squint; her nose bled once, and she conglied and experiented phlegrastrailed with blood. The child was seen at the hespital three days ofterwards. Her temperature was then (6 n.u.) 1637, and there was consolidation of the lower two-thirds of the left lung on the posterior -

pect.

In many cases where nervous symptoms are prominent there is a solow that of the face, with tenderness over the liver, and a constipated state of the bowels. The symptoms of nervous excitement do not appear to be dependent upon undue elevation of temperature, for they do not necessurily occur in cases where the pyrexis is most marked; nor do they see to have any connection with the ordinary raffex excitability of the nervous

system so eccurace in the young child.

A little girl, aged three years, was noticed to be very restless and imtable for a fortnight. At the end of that true she had a fit while at diamer. The child was brought to the hospital and retrained controlled for two hours. She was kept in the hospital for about a work on account of twitchings in the nonedes and a certain excitability of manner, although she had no return of the fits and seemed to be perfectly intelligent. The howels were costive and had been much confined, otherwise no derangment of organs could be discovered. After her discharge the child remained well for a fortnight, and was then brought lack to the hospital with an attack of lobar parametric involving the lower part of the right long. In this attack, although the temperature was high (about 104, both ascenting and evening) the almost had not been unbreed in by convulsors; there was complete absence of purvous excitement; and the discuss an

an esceptionally mild course.

The recording in passumenia is barried from the first. There is no actual dyspawa, for in an onlinery case we find zone of the distress which in seen when a child is consciously suffering from shortness of breath. He lies down in his bed and requires no emport by additional pillows. The nares dilute widely, but the respiratory movements are werely increased in rapidity without being exaggerated in degree. The pulse is also quicker than normal, but is proportionately less harried than the breathing. Consequently there is a disturbence of the relation naturally existing hereres the pulse and the respiration which is a very important symptom. The ratio from being 1 to 3.5 is reduced to 1 to 2.5 or even 1 to 2. Thus, a respiratory rate of 75 with a pulse rate of 140 is very commanly use with. Although the rapidity of breathing is not accompanied under order tory circumstances by a feeling of dyspinou, the child shows by his musner that the supply of air to his lungs is a pressing necessity, for he will not willingly allow the process to be interrupted. He will bear gradient confort without complaint, and indeed the passironess of a young shill under examination is a characteristic feature of the disease. If he begin to ery he usually ceases to do so very quickly. If he suck, he does so horriesly, stopping at short intervals to breathe through his half-open mouth, as air cannot be admitted in sufficient quantity through the now.

The coages is thickly furred, and in severe cases may become dry and brown. Venetting often occurs at the beginning. The bounds are usually rentimed, but may be loose, and in exceptional cases there is probus dis-

rhon. The appetite is completely lost, and there is great thirst.

The arrive is diminished in quantity. Its specific gravity is high solid it is often thick with lithates. The excretion of uran and one and a above the neurage of health; but there is a great dimination in the amount of chlorides; and at the height of the disease these sake may disagram altogether from the urine. Occasionally there is albuminums; and his pigment is often noticed.

The pyrerie is high from the first, and the remission is the marker is

often very slight, suidom exceeding a degree or a degree and a half. The temperature rises usually to between 103° and 103°, but may be higher. It after reaches its maximum on the third day. When the temperature falls it falls suidouly. Thus, in the case of a little gul, aged fire years, on the evening of the lifth day the themometer registered 104.2°. It then began to fall. At 10 s.u. it was 101.2°; at 2 s.u. on the following increing it was 103.2°; and at 6 s.u. 39°. It remained all day at this level, being the same at 10 s.u.

Although in ordinary cases of premuonia there is no actual dyspram. in exceptional instances we find serious suffering from want of brestle. It organiously happens that when a large area of lung has become rapidly contolidated the insurf's action is senously endograssed by the impediment to the polynomicy circulation. The over-distended right ventricle labours ricently to force the circulation operands; but its walls seen become avadenced and oblated by the pressure to which they are exposed. We find the child propped up in his cot struggling for breath with a pale or light face. His nares dilate widely at each inspiration; the cliest-walls are forthly elevated, but expand only imperfectly; and there is great recession of the suprasternal noich, the intercostal spaces, and the spegasterum as each breath is drawn. The child can hardly speak, but his expression indiestes terror and distress, and beads of event often stand myan his brow. On inspecting the chest the right auriele can usually be seen benting in the second and third interspaces to the right of the stemum ; the heart's action is violent, while the pulse at the wrist is so feeble as to be hardly perceptible. There is, indeed, little blood in the systemic circulation, but the pulmonary system is engaged. These cases are not so common in the child as they are in the adult; but they are occusionally met with in early life, and suless prompt assistance be remitted may quickly prove faini,

A physical commutation of the chest may not at first discover any signs of the inflammatory lesion in the lung. Often two or three days shape before any characteristic changes are to be discovered by the finger or the tar. Usually on the first day or two the percussion-note is normal and with the stethescope we find merely a sonoro-sibilant chonchus scattered taste or loss widely over the lung. Even when consolidation occurs, if this be assumed in the mobile of a lobe, we may find bronchial breathing, with a part of fine couplishon at the end of inspiration, but the percussion-tote may be normal as long as a thin layer of healthy lung-tissue intervene

between the diseased spot and the surface,

In an ordinary case the physical signs of the disease are as follows:

During the stage of exprograms inspection can achieve discover any impairment of movement on the affected side. In young children this is always deficult to detect, for the respiration being chiefly disphragmatic, the chest-walks take a comparatively small part in the respiratory movement. There may be not first no dulness on percussion, or the note may lare a slightly higher pitch than that over the sound long. The breathing is very barsh and either leader than natural, and towards the termination of this stage a fine paff of erepitation is ranght at the sud of inspiration. This is remaily only to be bound when the child draws a deep breath. In ordinary breathing there may be a little coarse bronchitic rhonchus both with inspiration and expiration which presents nothing characteristic.

In the stage of asymmetric a faint rocal vibration may be sometimes detected over the affected side when the child speaks or crises. This sign is a very capricious one. It may be noticed in very young subjects and be absent in a much offer child. If present, it is a sign of value, but no

inference can be drawn if it fail to be perceived. The percentences over the affected part is now dull; but the dalaem is far from being complete, as in pleurist. The sense of resistance, too, although increased is not extreme, as in the case of effusion. It is rather greater than natural and that is all. In bubies and young children the increase of relations may be very triffing. Assemblation over the consolidated spot discourses loud tabular breath-sound, and the excitation, which was before heard at the end of inspiration, is now no longer to be perceived, although at the broders of the solidified region it may still be detected. If the child on be peremded to speak, the resonance of the voice is lagle-pitchel mi smiffing, and is conducted with much greater distinctness than natural in the ear. This sign is however, not always present, and in a case of the doubted consolidation the resonance of the voice may be nernal. Indeed, in exceptional cases—owing possibly to plugging of a tube with manurocal resonance, and even blowing breathing itself, may be indistinct and distant-sounding, or even altogether suppressed. On the other hand, if the consolidated apot is in the middle of a lobe, completely surregarded by healthy tissue, and the patient be an infant, a bronchophenic resegues of the cry may be the only sign to be detected of the pulmonary lesion.

When resolution occurs in the affected part, exceptation returns coarse and more like bubbling thus before; the breath-cound becomes less highpitched and metallic, and gradually loses its blowing quality. The differences distributes and finally disappears. Betterning exeputation is often
absent in the child, and resolution frequently takes place solitonia my
moist rhondous being heard. The excessive resonance of the voice and my
assally persist over the affected spot for some time, or until the consolitation has completely disappeared. Resolution is curried on more equilly in
some children than in others. In many cases, however, when lathous persists for some weeks after autoidence of the general symptoms, the impurment of the percussion-note is due to a layer of lymph over the ideas at

the affected spot.

The physical ages just described usually occupy the lower two-thirds of one side; but may be found at any part of the long. Often they are confined to the apex; or may be discovered over a limited area under us of the arms. As has been already observed, they are often slow to develope; and therefore, when from the peteeral symptoms enoughs premious is suspected, frequent and complete symmation should be sade until the situation of the local lesion is discovered. An important powering of this from of discover is that the physical signs, unless situated at the spex of the long, are usually confined to one respect of the chest. If they are detected at the posterior nepert, the signs are normal is lent; while inflammation of the unterior part of the long produces to shown of resonance or respiratory sound at the back of the cloot. Therefore complete examination of the chest must be made before we are justified a saying that no signs of presuments are present.

Teramentions.—In the large majority of cases in the child croupes personnel and in resolution and recovery. In the primary form of the discusse an undecounable termination is very rure; and even in case of secondary presuments, ruless the child be a new-born infant or in a suite of great weakness, it is exceptional for him to die. When death takes place it usually occurs on the fourth or fifth day as a result of failure of the boart. It may, however, happen later as a corresponder of absorts of

gangrens of the lung.

When resolution occurs, the improvement is very sudden, and the da-

one terminates by crisis. The temperature, which had given little or no ucu of reduction, falls suddenly in the course of twelve hours to the normal tend, and remains low for four-and-twenty bours, even if it afterwards undergo a moderate increase. The cries offen occurs on the fifth day, but may be deferred until the eighth or ninth, and in rare cases until later. The violence of the onset, the height of the fever, and the reverity of the nervous symptoms are not in proportion to the extent of surface inrelead, nor are they to be taken as an indication that the course of the disease will be prolonged; for cases in which the general symptoms are very pronounced may come to an end on the fifth day. The ecsention of the pyrexia is followed by an immediate suprovement in the child's condition. The skin becomes moist; the tongue cleans; the pulse and respiration full in frequency and regain their normal relation to one another; the rough is loose and less frequent; the urine is more profuse, said the appetite returns. The favourable charge in the general symptons procedes the improvement in the physical signs, and for a day or two the resonance may continue to be impaired, and the breathing to be brenchin or blowing over the affected part of the hing.

In exceptional cases the termination by resolution occurs more gradually. The temperature perhaps falls suddenly, but almost immediately rism again; so that for two or three days, a week, or even longer, the boddy heat may continue to be considerable at night, with a morning fall. Sometimes, after remaining low for two or three days the thermometer again registers a high degree of temperature and the child passes through a complete relapse of his illness. The relapse is, however, usually shorter

and less sewere than the original stanck.

The termination by obscur of the long is not often seen except in cases where the pulmonary affection is secondary to pyrmia. It does, however, econistrally occur in children of weakly constitution who are Eving in thereughly insunitary conditions; and may also be seen in cases where inflammation is set up in the lung as a consequence of impaction of a foreign

body in one of the bronchi.

When absence of the lung occurs in a case of secondary preumonia the temperature remains high, or if it full repidly rises again and assumes a lacticitype; there is great weakness; the temperature becomes dry and brown, and the complexion dull and earthy in tint, with lived discoloration of the syclels and lips. On examination of the chest the dulness is found to persist, and the heathing to be bronched or blowing, with much large bubling or even notalize rhandlus. Unless the absence hard into a brunched take, and its contents be exacusted, the physical signs are not characteristic of the besien. If, however, the purulent contents are discharged, cover now breathing, whispering bronchophous, and the usual signs of a cavity may be detected at the seat of the disease. If the notecose to the result of preview infection, the general symptoms are those of the constitutional state, and the found signs, not being the consequence of any extensive local inflammation, may be overlooked, here especially as the absences are small still are often completely surrounded by healthy lang-tissue.

Gaugrene of the lung will be considered in a separate chapter,

Promocnia is occursonally lobest. This form of the disease is most consumally seen when the patient is a young child worn and wasted by chronic abdominal demogrational, whose nervous irritability is almost completely lost. In such cross the dedinary symptoms of invasion are not netted. There is no sign of pain in the chest. Even the cough may be infrequent or absent. A slight rise in the temperature, increased rapadity

of breathing, perversion of the pulse-respiration ratio, and indication of early prostration may be the only symptoms socied by the intercement

malady,

Complications.—Inflammation of neighbouring tissues often complicate
a case of paramonia. In the child a certain amount of browning is a casmon feature of the illness. In almost all cases we can detect some source
sibilizat rhonchus not only in the affected lung but also on the appeals
side of the chest. In many instances there is also some moist rhonchus.
As a rule the amount of bronchitts is trifling, and the complication is rasily
sufficiently marked to be a source of danger.

Exchapteristy may also accompany the pulmonary inflammation and constitues there is a moderate liquid effusion. The pleurist is adden at much moment, and absorption usually occurs rapidly when resolution of the inflammation has taken place. As has been before remarked, the prostature of dulness over the seat of disease during convolunceurs is commonly due to the presence of a layer of lymph upon the pleural hing of

the chest.

Projected it is sometimes induced by extension of the inflammation; but this complication is less common in preumonia than in the one of pleurity. In the child the inflammation of the pericardium, when it comes in the course of a croupous parennenia, is usually plastic, and is but neely accompanied by efficient. In regard to prognous it is probably of such

importance.

Anader is sometimes seen, and is usually mild. It is due to pressure upon the bile-facts by hypersonic portal vessels, the circulation through the liver being impeded owing to the condition of the lung. If any size arise from gostro-due-lenal cataerls. If this be sufficiently intense to course an impediment to the introduction of nonrishment, the consequence may be serious. Gustric or intestinal materix may be present without journilies. Districts is a symptom not unfrequently seen at the beganning of an attack of preumonia. As a rule, the purging is not encourse, and ill consequences movely follow from the intestinal derangument.

Responses.—In a well-marked case of crosspens parametris the dignosis is not difficult. The sudden occurrence of high lever, lendsche, para in the side, short backing cough, percented poisser-spiration ratio, and rapidly increasing non-cular weakness is very suggestive of this finance. It is important to bear in mind the nervous symptoms which often nonpany the onset of the illness, or we may alarm ourselves with suspirates the un inflammatory head affection is about to manifest inself. But although a fewerish child is often light-headed at night, and unselves semantain his talk, high fever with early and marked delivious is not a common occurrence, inclosed this combination breaking in upon a sinte of health if combined with a short backing cough, is almost possible to parameter. If, in addition, we notice that the mires dilute at each inspiration, and that the breathing is quickered out of proportion to the pulse, we are justified in entertaining the errorgest ampreions that the attack is one of exception inflammation of the lung.

In some cases cough is absent, or is so slight that it praise quite intetroval, and the narrow are motionless in inspiration. Still, the sudden overrence of a ligh temperature, with pangrant heat of skin, as estimated by the hand, combined with early delictors, should suggest the presence of presuments. In all such cases the chest should be manufuly summer for confirmatory evidence. It must be renembered that the physical signams often slow to appear, and that forty-eight hours, or even three or four day. may pass without any consolidation of the lung being discovered. It must also be renombered that the severity of the symptoms is not in proportion to the extent of lung-tissue involved, and that after a violent cases the local signs may be confined to a mere patch of solidification at any part of the primotrary surface. We must not, therefore, content correctes with a cursory examination of the bases of the lungs. Careful attention must also be directed to the spaces, and we must not forget to search the anillar on either side for evidence of discuss. In cases of premisenic consolidation the dulness is not complete, and is accompanied by little increase in resistance. Moreover, in the large unjointy of cases the signs are limited to one aspect of the chest. Sometimes a faint vibration of the chest-wall, imappreciable upon the healthy side, may be detected over the

and of disease when the child speaks or cries.

The combination of high fever, beadsche, and distributions may be perplexing. If the patient be an intent, the symptoms may be ascribed to teching, and the condition of the imig may be combooked. The naive, lowever, act, and the respiration, if counted, will be found to be harried out of proportion to the pulse. If a physical examination be unde, as it neight to be, a matter of routine, the nature of these cases will not escape recognition. In an older child the same combination of symptoms would suggest enteric fever. But the violent cases, the flushed elecks, the active rares, the rapid breathing, the lacking cough, are very unlike the beginning of enteric fever; and if delirium come on, it begins very early on the first or second dark in pneumonia, while in typical fever it is rarely seen before the end of the first week.

In young children, in whom the disease may begin with circlest consulsions, or with a drowsiness approaching to stupor, the diagnosis is very difficult, especially as there is often no cough. Usually until signs of consolidation are discovered at some part of the elect the nature of the illness most remain doubtful. Still, drowsiness and a temperature of 100° or 104°, without signs of severe bendache, but with rapid, regular, breathing, a percented pulse-respiration ratio, and pungent heat of skin should suggest

the presupce of presumonia.

In the better form, which usually occurs in wasted children, rapid breathing and active narcs ought always to lead us to make careful and repeated examination of the chest.

The distinguishing marks of enterrial pneumonia and collapse of the

larg are considered in the chapters treating of those subjects.

Programs —Primary crosspens pacuscosis, unless very extensive, almost always terminates favourably, and seen in infants is solden dangerous. Resolution takes place early, as a rule, and the consolidation chars completely usus, leaving the lung as sound as before. The situation of the local lesion has no influence upon the programs, and no special danger is connected with influentation of the apex of the lung. The nervous symptoms, however serious they may appear, need cause no alarm, for they subside altogether when consolidation becomes established. Delirium in itself, without other signs of nervous disturbance, is rursly an unfavourable symptom in a ferensh child. It usually disappears after a few days, but may return again nowards the ond of the disease as a result of unsharm; but this recurrence, if the indication which it formishes is attended to, is carely bellowed by dangerous consequences.

The secondary forms of passimonia are more serious than the primary, for the fendency to failure of the board's action is increased by weakness induced by previous disease. So, also, the explorer of a depressing complication adds to the danger of the cost. Preumonia occurring in the course of Bright's disease is an especially serious form of the complaint.

A very rapid price (over 140) is an unfavourable sign, especially if the pulsations are irregular in force and rhythm. So, also, a rise of temperature above 100° should be regarded with anxiety, although in early life this phenomenon is less acrises than a similar elevation would be

in the case of an adult.

Terrelevel. In an ordinary case of primary crospous possessons little is required beyond keeping the child quiet in bed in a well renthed room, wropping the affected side of the chest in cotton wool or linted med poultices frequently renewed, and administering a simple efference; saline or other febrifuge draught several times in the day. The pair is the sale is usually greatly relieved by the use of hot poultiess and other applications. To be efficient, however, these should be used as lot as the skin can bear them; and dry heat, such as a bog filled with heated long or soft, is perhaps better -it is certainly more manageable-than hot flasters. If any screen pain is complained of, a proportion of mustand (one-title or one-extly may be added to the positive, and this may be allowed to remain for six or eight hours in contact with the skin. If the cough is distressing a few drops of inscacamha wine and of compound tineture of emplor may be included in the mixture; and a few drops of autimorial size may he added with advantage on account of its displacestic action upon the skin. The old plan of attempting to reduce the inflammation by large doses of antimony is one to be very strongly deprecated. If the bossls are confined, or the complexion has a sallow cost and there is tendentees over the liner, an aperion powder should be prescribed, such as a grain of calcand with two or three grains of julipine; but the sperient solden as quires repetition. Violent purgation in this discuss is decidedly injurious,

The fliet should consist of mout broths and milk until the consolidation is complete. When the establishment of blowing breathing and the disappearance of crepitation show that the process of repair is about to begin the diet can be improved. Strong bed-ten should then be given at proper intervals, and a yelk of egg may be added to the diet. The thirst may be relieved an often as the chald requires drink, but he must not be allowed to take a large quantity of fluid at one time. In the case of an infinit at the breast, or one who is brought up by hand, some this bulley-water should be given from time to time to relieve thirst, so that the

quantity of food the child takes may be restricted.

If the peresia rise to a high level and the child seem distressed by the intensity of the fever, the temperature may be reduced by speaging the surface of the hody with topid water; or if absolutely necessary, the slittle may be placed in a tepal hath of the temperature of 70°. If, however, the both he used, great care must be taken not to depress the chief, as falore of the heart's action is one of the dangers to be apperheaded in cases of preumonia. Both before immersion and after removal from the bith a stimulant should be given, and if the fost feel cold, a hot bottle should be put into the Lottom of the cot. Quinne is strongly recommended by some authors as a valuable remedy at an early period of the fibres. It is given partly as an anti-pyretic, for it is and quickly to reduce the temperature without wallouing the heart; partly for its supposed influence in checking the spread of the disease over the long. To be of service as an anti-pyretic the drug must be given in full slows; and it must be remembered that children bear the remedy well. For an infant of recht months one grain should be administered three times a day. The

quantity can be increased by one grain and a half for every year of the chal's life. Acouste and other depressing anti-pyretic drugs are dangerous rearches to employ in cases of paramonia on account of their weakening influence on the heart.

In cases where great dyspassa and threatened cardiac failure arise from over-distinction of the right side of the heart, it becomes a serious question whether abstraction of a small quantity of blood is not called for. If the darger is imminent I should not besitate to take one, two, or more ounces of blood from the arm. Life can often be saved by this means. Even while the blood is flowing the inspirations become slower and quieter and expand the cheet more fully; the pulse gains in falness and force; and the armiety and feeling of oppression subside. I can look back upon several fatal cases which I now believe might have been saved that I had the courage to relieve the labouring beart by the judicious removal of blook. It is in such cases alone that bleeding is justifiable in this disease; and here the breakment is directed not against the inflammation, but against one of its consequences, viz., the overtaxing of the heart by the impediment to the pulmeously directation.

It is not often that stimulants are required in cases of primary preumonia in children, but if the disease is accordary they may have to be resorted to. Great supplity of the pulse is an indication for stimulants which must not be disregarded; and if a pulse of 140 is found to be intermittent in force and rhythm, doses of egg-and-brandy should be given at

regular intervals until improvement occurs.

Delirium at the beginning of the disease, if noisy, may be usually existed by topid sponging of the surface of the body. If necessary, a small dose of Dover's powder can be given at night. Chloral, on account of its depressing effect, must not be used. If delirium occur later in the library it is a sign of debility, and energetic stimulation will be required. Respleasess can also to usually removed by topid sponging in the evening.

If diarrings occur, it may often be promptly checked by a dose of ensursit or of risibaris (gr. iij - v.), with double the quantity of the aromatic chalk powder given every night. Astringents are rarely necessary in these cases; but if the purging continue, sal volatile may be given with spirits of shlousform and a drop or two of hardamam, according to the age of the chibl, three or four times a day. A layer of cotton wadding should be applied to the helly under a flaund binder for the sake of warmth; and food should be given in small quantities at a time.

Directly the temperature falls tonics should be given; and the diet of health may be returned to; taking once that the food is digestible in kind,

and that it is given in quantities suitable to a convalescent.

CHAPTER V.

CATABRHAL PYEUMONIA.

Circuma, or lebular pneumonia, or brencho-pneumonia, is the common faces of inflammation of the lung met with in inflame, and is frequently seen in early childhook. The disease is quite distinct from the crusposs form previously described, differing from it in its pathology, its symptoms and its tendency to end in death. Cutarrhal pneumonia is nearly always a secondary affection, and results from spread of inflammation from the brenchial innecess membrane to the absoli. Consequently, the disease avariably attacks both lungs, although it may be more extensive on one side of the body than on the other.

Consultor.—As brought-presentation is always preceded by pulmonary cutarril, the causes which induce broughtin in the right may be locked upon as tending in a great measure to set up cutarrilal presentation in the sir-vesicies. These are especially cold and damp, and the subsistion of dust

and other irritating particles in the zir.

A severe becordate in the young child always inclines to spread to the finer tubes and nir-cells; but cortain forms of illness have great infusive in determining the extension of the inflammation. Thus, measies and who eping-cough number lobular pneumonia amongst their most frequent sequely, and the distance is also common as a secondary consequence of diphtheria. In scrobileus and tubercular subjects, and even in claiden who are merely weakly and under-nourahed, lobular prounous is realisexcited. Therefore any influence which diminishes the resisting power of the child and lowers his general health must be looked upon as a prelisposing cause of the complaint. Thus, lead feeding, insurinary conditions, and depressing derangement or disease may all help to induce this form of proumonia. It is very common in the case of young children for the illness to be preceded by a history of more or less parsistent district. A young child who is subject to attacks of intestinal estable becomes excessively sensitive to chills, and after a time acquires a catarrial propersity which, combined with the weakness induced by the digrature density. ment, is likely to result in an attack of enterrhal passementa. Neplected robis on the chest may set up become premionin in the most ribust subjects; but amongst the well-to-do clause it is comparatively rare to fall this disease in children who are not strupous or delicate, or rickety, or win have not been lately suffering from an attack of measies or whospingcough.

Markal Austrany.—Lobular preparents may arise as a consequence of direct extension of the inflammation from the larger tubes to the smalls, such thence to the air-cells; or may occur accordantly to colleges of the long. In the infant the latter is the method in which the disease usually originates, for in such young subjects, on account of the narrowing of the broachiel tubes, the feeble inspiratory power, and the normal softness and

compressibility of the chest-walls, collapse of the long is a very common consequence of pulmonary estarth. The special tendency of rickets to be complicated by broughitis and external paramonis has been elecutere referred to. The difficulty of expanding the chest in this discuse, owing to the softening of the ribs, greatly contributes to setting up collapse of the lung; and any additional impediment, such as a catarrial state of the broughtal membrane, promotes the exhaustion of the sir-cells. Collapse of the bing is followed by congestion of the small ressels, owing to the impediment created by imperfect nightion of the blood, and to the absence of the expansion and contraction of the air-cells, whose movement in a state of health materially advances the pulmonory circulation. As a result of congression of vessels there is ordenn which causes great diminution in the expensionre and cohesion of the tisture at the affected spot. In this state the part is ready for the development of influentatory changes. Influemation readily extends to it from the air-tubes; or the irritation induced be the penetration into it of secretion from the broachial mucous memfigure excites the inflammatory process.

Lebelar pretunonia usually begins in isolated groups of vesicles, being often determined by the presence in them of inflammatory products drawn from the small takes with which they are in communication. On inspection of the large we are scattered noticles of consolidation of a redshift gray colour scattered over the surface. They vary in size from a small per to a nut. Their consistence is friable, their substance amounts or faintly grandler, and their circumference ill-defined. As the process advances, the adules which were at first isolated become united at their borders so as to produce considerable tracts of consolidation; and at the same time the sabilited parts become finner, dryer, and of a yellowish gray colour. In their centres we can sometimes see divided air-tubes filled with purulent

matter.

The long-lisene in which the nodeless are embedded exhibits collapse, copposition, ordered, and emphysema in various stages and degrees. A certain amount of dilatation of vesicles is almost invariably present in the neighbourhood of collapsed portions of lung, and there is, moreover, an appreciable degree of ephysicist dilatation of all the minuter broochi, especially of those portions which immediately adjoin the terminal alwest. The walls of these tubes are excessively attenuated. The dilatation appears to be the consequence in some cases of accumulation of secretion. In others it is due to diminution of the respiratory surface, for plugging of some tubes with narrow cases an increased rush of air to the parts which

still remain pervious.

The consolidating matter itself consists in a very small degree of exulad corpuscies, as in the case of crospous paramonas. On summation
the absoli will be found to be staffed with cells, but these are in great
put derived from proliferation of the spithelial lining of the vesicles. Mixed
up with these spithalial elements are isosceptes and much gelatinous muevid matter—probably secretion from the inflamed broachial nucrous memleme which has been drawn into the absoli. In all cases of caturdal
premionis large quantities of thick pariform broachial secretion are found
filling the nir-cells and plugging the finest tubes. When this is very copious the amount of epithelial cells is comparatively insignificant. Thus,
some of the no lules of consolidation appear to be composed almost exclusively of thick broachial secretion, and a microscopic examination shows
very few preliferated cells and lettle change in the epithelial lining of the
alread. In other parts the nodules are composed almost entirely of epi-

thelial elements, and the epithelium lining the alveolar walls is swellen,

granular, and partially detached.

These lesions are found in both lungs; and the process begins in the most depending part, i.e., in the lower labes at the posterior aspect; for gravitation greatly side the passage into the cells of these parts of parallal secretion descending from the tubes. The extension of the inflamention laterally is always irregular, and the selection of the lobales for since the powerfly capricious; for while some become consolidated, others in imaginate contact with them remain healthy or merely congested. The redship and patches of solidification are at first isolated, but tend to coalesce and in the latter period of the disease congenitively wide areas of consolidation may be found.

The plears in the neighbourhood of the spots of consolidation is reddened with points of ecohymesis, and adhering to it is often a little plastic

Irmph.

If the case do not terminate unfavourably, resolution usually sames. A process of fatty degeneration takes place in the contents of the absolication consolidating material becomes settened down and is removed more usless rapidly by absorption and expectention. The process of resolution often occupies some time even when the long finally returns to a normal condition. Other, however, the process of fatty metamorphosis becomes acrested. The cells then strophy and become ensoure, and a chronic consolidation is left which forms one of the varieties of pulsamony phthosis. In other cases an infurnity processor is set up which leads to a great development of fibroid tissue in the part. The wallsof the mi-takes and the alread become thickened and industred and the takes filling. This condition forms a special variety of long discuss which will be afterwards described (see fibroid industrion of the lung).

Symptons — Bruncho preminents in a secondary disease. De symptons are always preceded by those characteristic of a more or less sower palmonary cutarrh. In weakly, ill-neurobed children, especially if they are suffering from an attack of measies, a comparatively trading estarts will set up lobular inflammation of the langs. In a robust child inflammation of the shooti schoon means unless the preliminary catarrh has been long continued or very severe. When becomes precious follows an ordinary cutarrh of the lengs, the disease usually runs a very scate and rapid coses and connectly ends in death. When it arises in the course of an attack of measles or whooping-cough the complication is more subscute in character and the proportion of recoveries is greater. Still, such cases tend to

leave unabsorbed deposits in the lange.

After the symplams of pulmorary enterth have continued for some line they enddenly change their character. The temperature rises; the cough becomes short and hacking; the pulse and respirations are lauried; the face is more or less livid; the mores set; and in the infant a well nurked labial line becomes developed, passing from the angle of the mouth down-

wards and outwards to the ranges of the lower jaw.

The pyrexis varies in degree. In children in whom an ordinary bees chitis gives rise to fever, the temperature, when inflammation of the long is supermidded, may reach a high level. Thus, the thermometer may mark 191° or 105°, but undergoes more decided variations during the twenty-four hours than is the case in crosspose procuments. In most matmora there is a decided remission between 6 a.u. and noon; the obtain elevation occurring between 10 v.u. and 3 or 4 a.u. Semistimes, however, for twenty-four or forty eight hours the temperature may remain at about the same level.

varying only by half a degree. In spite of the pyrexia the skin is often

most, and in some cases perspiration is produse.

In exterbal as in compets paramonis the pulse-respiration ratio is perverted; but the disproportionate rapidity of the breathing is variable according to the accelerace of the case. In the severe acute variety the ratio may be 1 to 2 or even 1 to 1.5; while in the subscute form the ratio may be only 1 to 2.5 or 3. The pulse is very rapid (120 to 150, or even higher), but is small and feeble, for the impediment to the passage of blood through the lungs obstructs the whole circulation. Consequently the arteries are comparatively empty, while the senons system, as is shown by the follows of all the superficial veins, is congested.

The brenthing besides being hurried is laborious, and there is evident dyspron. The child often cannot his down in bed and has to be supported by pillows. At each inspiration the nares dilate widely, and the shoulders rise with the laboured action of the accessory muscles. Often the child endeavours to sid the expansion of his chest by grouping tightly the bars of his cot. Still, with all his endeavours the potient is unable to fill his large with air, for at each movement of the chest the intercostal spaces and supra chricular holiques become depressed, the epigastrium sinks in, and

the lower ribs are retracted.

The cough, when the sin-cells become attacked, changes its character and seems painful. This change in the cough is a very valuable sign. Instead of the prolongest, rather puroxysmal cough of broughitis, we hear the short hard back of puroments; and this may be repeated with each expiration for many minutes together, causing great distress and exhanation.

Loueness of the bowels is a common symptom, the stools being slimy and thick, or thin and watery. Veniting, induced by the cough, is also often present; and much mucus is discharged both from the stomach and large. Nervous symptoms are sometimes noticed. In an uncomplicated case convulsions do not occur in the course of the illness, although they may be present shortly before death when asphyxis is imminent; but twitchings and spasmodic movements of the masseles of the cycleal are often

seen during sleep.

At this time a physical examination of the chest discovers merely the signs of broachitis; for the consolidation being limited to small scattered nothins and surrounded by emphysematous sinceds, can marely be detected by percussion. Sometimes, however, by employing broad percussion, i.e., by striking with three fingers on three lingers applied to the chest-wall as preximeters, we notice some diminution of healthy polinousry tone; and in some cases a careful exploration distinguishes certain spots where there is more evident dimination in resonance, and perhaps becomind breathing over the same limited area. If the provitrania occurs in collapsed portions of Jung we can often find at each base a permissial strip of distress reaching upwards for a certain distance, when percussion is made very lightly. With the stethoscope general fine halobling rhoughus is board, and in certain spots this will be noticed to be fixe, dryer, and more crepitating in character. This crepitating quality is especially noticeable over an area where the breathing is bronchist; for unities eroupous prientmonia, the crepitus is not last when consolidation or-

As the illness advances, and the nodules of consolidation grow larger and conlesse, more and more of the respiratory surface becomes involved, so that quantic symptoms are manifest. The face grows encountrily pale, with a dusky tint around the eyes and mouth; the expression is enzione; the sychalls are sturing and suffused. The respirators may tise to 70, 80, or even more in the minute; and the breathing grows more and more laborious. The child is poinfully spathetic and dult If an infant, he refuses has bettle, and can with difficulty be parameted to smallow finds from a specia. His lands and feet are purple and often cold to the touch, although the internal temperature of the body is still febrile. At this period cough almost coases, partly from exhausting partly from impeired irritability of the respiratory centre. In this state the shifld sinks and dies, the end being often proceded by a fit of corrultions. Before death, when this takes place from applying, the internal temperature may be subnormal. In the case of a little rickey boy, spell thirteen months, with only two teeth, who died on the eleventh day from extensive material presurous of both lungs, the temperature at 6 nm on the evening before death had fallen to 98° in the rectum.

At this stage of the disease percussion discovers more or less extension deliness of the back on each side; and the breathing is broaden or takelor, especially about the angle of the scapula. The respiration is accompanied by much fine metallic crepitation both to inspiration and expiration; and this is often very superficial counding, as if generated immediately undermoth the stethoscope. In the front of the chest there is selden deliness, unless perhaps the resonance at the bases is diminished; but usually a certain amount of coorse crepitation may be heard in the nanneary and infra-mammary region on each side. A curious leature at this time is the indifference of the child to the disconducts of the cannutation. He allows himself to be placed in any position without couplaint, and

esems to be quite mircless what is done to him.

If the disease terminate favourably, there is no exitied fall of temperafters, as is the case with the recupons variety of pneumonia. On the contrury, the diminution in the pyrexia takes place very gradually, and the improvement in the general condition does not occur wattl the local symptons have given signs of amendment. Thus, the pulse and propintion are reduced in frequency, the breathing becomes less laborious, the pulse fuller, and the superficial veins less distended. The puller and laudity of the face are less noticeable and the expression loss; its distress. The longue cleans, veneting censes, and the appetite returns. Still, the tenperature, although it continues to fall, is some days before it sinks to a natural level. The physical night are also very slow to improve, and absurption takes place very gradually. This variety of passimonia, as has been said, is apt to leave behind it easeons unabsorbed masses in the leng which may lead to serious illness in the future. Still, under favourable comslitions these often become absorbed even although a period of months has alapsed since the attack was at an and,

If the discase do not prove fatal or show signs of resolution at the end of a week or ten days, it often takes on a subsente course. In some cases, especially where the catarrhal presentation occurs as a complication of measing or whooping-cough, the subsente character may presual from the first. In this form the symptoms are less severe than in the scule variety, and the course of the discase is much longer. The temperature does astronal so high a level, remaining usually at about 102°, with morning remissions. Sometimes the pyrexis undergoes curious alternations. Thus, after long moderate for a few days (99°-101°) the temperature auddenly shoots up to 104° or 105°, and after a day or two sinks again to the same level as longer. The pulse and respiration are both hurried, but their normal mis-

tion is comparatively little altered. As the disease advances the courts loses its learking character and occurs in violent paroxysms almost indisterrustable from those of pertussis. Their duration is, however, shorter, and impuration is noiseless or less decidedly growing. They may be folloved by vomiting. This character of the cough should lead us to sus-

pect considerable dilatation of the broachi.

Venting and accordiousness of the bowels are common symptoms. The tongue is forred; the appetite is impaired; the strength is dissinished; and the child wastes rapidly and boomes very frable. In those cases, in allition to the physical signs of brought-promuous which have been already described, we find very clear evidence of dilatation of bronchi. At each posterior base, but more pronounced on one side than on the other, mercious breathing is heard with a course metallic ringing expiration, sounding very close to the ear; or the respiratory sound may be amphone with finkling echo. In many cases, too, the vocal resonance is broachephonic, and the faintest laryngeal sound is conducted clearly to the end of the stotkoscope.

These mass often continue for weeks, but under palizions treatment generally end in recovery. There is, however, a great tendency to imperfect absorption of the deposit; and unless the child be placed under favourable annitary conditions a chronic consolidation may be left which is afterwards a source of danger. Sometimes, too, these cases pass into filercal

induration of the lung.

Complications. The complications of simple estarrial pursusoris are not numerous. The illness sometimes begins with strictulous laryngitis. and in the rure cases where the apasmodic disease ends fatally death is usually due to the presence of the pulmousry information. Gustrie and intestinal cularrh have already been mentioned as frequent complications. of the pneumonia. In the child a catarric is soldon simple; often several

fracts of mucous monthrane share in the demagement.

Cataerhal provincina is itself also a common complication of other forms of illness. Mensles, whooping-cough, and rickets have already been referred to. General tuberculosis in many, perhaps in most, instances becomes complicated with this form of pulmously inflammation; and In the case of fibroid induration of the lung the danger of the disease consists in a great measure in the repeated attacks of catarrial preumeets to which clubbren with this form of lung affection are peculiarly

Dispersis. - At the beginning of the illness we have to found our diagnosis upon the general symptoms alone, for there is at first no sign of constitution, and physical examination of the chest only reveals the presence of severe beonelistis. Mere elevation of temperature is no proof that the inflammation has spread to the alreeds, for in many children-especially those with scrofulous tendencies - a pulmonary enturib is accomputated by moderate pyrenia. If, however, the temperature reach 104" or 105," and at the same time the cough get surldenly short, backing, and poinful, while the breathing becomes disproportionalsly quickened so as to cause notable percession of the pulse-respiration ratio, this combination of symptoms is very suggestive of catarrial prosments. A percented pulserespiration ratio alone is not characteristic, for this may occur in cases of colleges of the bing. Still if with great hurry of breathing we find the respiratory most means laborious, and notice that the soft parts of the chest. Precio desply at each breath, the sign is in favour of pasumonia; for in palmonary colleges the breathing, although exoneredy hurried, is shallow, and unless the ribs are much softened from rickets the recession at the

base of the chest is alight.

Quote at the beginning of the illness it may be difficult to distinguish the disease from the croupous form of pneumonia where the signs of consolidation are delayed. At this time the age of the child, the history of the strack and the character of the breathing are important points of distinction. In an infant the inflammation is probably catarrial, and if the child is fan or bully neurabled, is almost certainly so. The history of previous cough points strongly to the lobular form; and laborious breathing, great recession of the chest-walls in impiration and a very evident feeding of dyspass are distinctive of catarrial rather than of croupous pneumonia. The latter discusse rarely attacks a feeble, ill-neurished in/ast; it comes on saddesly without previous catarri; the breathing, although burned, is not laborious; and there is no true dyspaces, the child not being distressed by the recumbent posture.

When extensive areas of lung have become consolidated, the catarrial origin of the lesion is distinguished by attention to the crepitation. This r.be in crosspons pneumonia reason to be heard over the solidified area and can only be detected at its confines. In catarrial pneumonia the crepitaing rheaches becomes finer and erisper towards the centre of the creatdation, and is heard with the most typical bronchial or blowing breathing, being sometimes, indeed, so copious as almost or entirely to cover the breath-nound. Moreover, most and dry bronchate riles are heard over the languagenerally. In croupous pneumona this is not often the case, for although some someon-orbitant rhonclass is occasionally present, this is triffing

in amount, and, as a rule, is not accompanied by moist sounds.

One of the chief difficulties in the case of catarrhal preumonia is to exchule tuberculosis. That we should be able to do so is of the greatest inportance with regard to prognessis; for while, if the inflammation be unrenplacated, recovery may take place, if the child is tube reular death is certain. The subscute form of the discuss occurring in a weakly child and accompanied by diarrhos and regid wasting, presents symptoms which are identical with those resulting from acute tuberculosis with secondary long complicition. The physical signs are also the same, for no additional feature is harnished by the persence of the gray granulation in the langs. Patrily history is here of importance. If we can discover that other children of the same porents have died with symptoms of tubercular meningitis, the history is suggestive of tubercle. If, again, we can learn that before the creet of the disease the stald was losing strength and growing pale and thin without evident cause, the fact is also in favour of taberculous. Again, the sea of the patient must be considered. Over the age of six years estarrhalis less common than croupous pneumogia. Therefore, if the enturbal inflators tion occurs in a child more than six years old, who has been preticulty wasting without apparent reason, and has not lately suffered from means or whooging cough, we have here strong evidence in favour of inherit. Of the nettral symptoms the only one which in any way points to a countintional cause for the illness is the presence of orders without alleminarie; but this phenomenou, although it may add weight to other endance, as stoof of little value in a weakly child. If, however, any senous semptons arise pointing to the brain, and convolutions occur, followed by spirit, unequal pupils, ptosis, or rigidity of joints, we can have no bearable a concluding the case to be one of acute tuberculosis. It must be remenbered that terminal convolutions are common in catarrial gueurous forapplyxia, and are quickly followed by death. But convulsious occurring

the coarse of the illness and not evidently the consequence of impurity of blood, are very suspicious of tuberculosis, even although no other sign of

percolesion be immediately mandested.

When dilutation of the brouchi occurs in an advanced case of the subarate variety of cataerkal procumonia it is important to exclude alcorative distruction of lung. Thus, in the fifth or sixth week of a bruncho-purumonia a child is seen with a temperature of 100" in the morning, rising to 102 or 103 at night. At the same time an examination of the chest discovers a fine crepitating rhouchus at the base of each bing, with impaired rescusare over the lower half posteriorly of each side, and at our basedulness, loud carernous breathing, metallic gurgling, thouchus, and brouchophone. These latter signs are evidently significative of a cavity; but the easity may be a dilated bronchus or a somen in the lung. To which of these causes the physical signs are to be attributed must be decided by reference to the general symptoms and the progress of the case. The pouition of the cavity, indeed, at the base of the Ising, points rather to broaelisectasis than to a vomice, but this is not conclusive proof. If, however, ue find that the temperature begins to fall, the child's appetite to return, the general nutrition to improve, and at the same time notice that the navernana sounds become less intense, the respiration less shrill, and the guigling less metallic, we may safely infer that no disintegration of lung-

Programs. -The prospect of the patient's recovery in a case of brouchepromionia is always doubtful. In new-born infants, indeed, the illness almost invariably terminates fatally; but even up to the end of infancy the rate of mortality is very high. When the disease succeeds to measles or whooping cough its course is less neate than when it arises as a consequence of simple primerary catarrh, and in these cases there is a greater proportion of recoveries. If, however, the lobular purumous come on during the spassaodic stage of pertussis, or towards the beginning of an attack of meades, it is very commonly fatal. The existence of any debilitating condiscn or exhausting discuss increases the danger of the case. Thus indightheria the occurrence of secondary broncho-pneumonia is an event of the utmost gravity; and in rickets the local weakness of the softened ribs. combined with the general want of power in the patient, maktable powerfelly against a favourable termination to his illness. The danger is usually great in proportion to the degree to which adration of the blood is inter-Therefore lividity of the face, blueness of the nois, lips, and eyelids, smallness and rapidity of the pulse with dilutation of the superficial vens, great perversion of the pulse-respiration ratio, suppression of the cough, in I marked muthy or soundence are symptoms indicative of serious danger. If convulsions occur at a late period of the illness we must prepare

the child's relatives for the worst.

times has taken place.

Protests.—The occurrence of enternal provincia may often be prevented by judicious treatment of the preliminary extern, and especially by the employment of energetic measures on the first sign of collapse of the lang. This subject is discussed absorbers.

When lobular pneumonia has supervened, the indications to be fulfilled are three in number. We have to reduce the temperature, to promote ex-

pursion of the lung, and to support the strength of the patient.

In order to leasen the temperature topid bathing is often rescried to.

The child should be placed in water of the temperature of 70°. In this he may remain for ten or fifteen minutes at a time. The both must be repeated more than once in the four-and-twenty hours, for the reduction of

temperature is only a passing improvement, and the presits quickly returns. This method is highly spoken of by Billiet and Barther, who no oursend its employment is every case, unless the prestration of the patient be extreme. Another method is that advocated by Bartels. It consists is packing the child in a cold, wet sheet, covered with a thick folded blanks, for three or four hours at a time. The process in this case also require to be repeated at intervals, so long as no signs of exhaustion are noted in order to maintain the improvement. The effect of either of these paramuia not only to lessen the fever, but also to increase the depth and reduce the frequency of the breathing.

Another very valuable resource is energetic counter-irritation of the skin of the chest. A large positive of mastard and limsed neal (one part of the former to five or six of the latter) should be applied for six or eight hours to the back. Afterwards a similar positive should be allowed to resist in for a like time on the front of the chest. On removal of the pushes the start should be covered with cotton-wood. These applications will often have to be repeated several times, for in this disease there is great telerance of arritation of the skin even in the case of a young infant. Even if the surface is bilistered by the application, no harm will be fixed. Indeed, I have been in the lashit of ordering the positives to be continued until some signs of bilistering of the skin have been noticed. The chest can then be covered with cetton-wood. In bad cases, instead of the mastard position, dry capping of the bank is useful. In one severe case of this discuss—a child of three years of age—I attribute the recovery of the patient extircly to the timely use of this cuergetic application.

While these methods of treatment are being carried out, the strength of the child must be upbold. Stimulants should be given early, and no attempt to lever the temperature should be used without at the same time administering boundy or the brandy-and-egg mixture. In this disease us in all others which rapidly depress the powers of the patient, children respond well to stimulants; and alcohol should be given every two or three hears, or oftener, according to the strength of the pulse, the rapidly of the breathing, and the degree of pallor and lividity of the first. The effect of the stimulant is to give strength to the circulation, to reduce the number of the respirations and to further the accusion of the blood. If the child cannot or will not swallow the remedy, it may be minimistered as in other exhausting forms of illness, by the springe and classe tube (see page 15), or through a coordelance tube passed into the stough through

the none.

The dict must consist of milk diluted with burley-water and guarded by a few drops of the saccharated solution of line, of strong beriston, yells of eggs, and ment essence. In the case of young intents the level wilk, white wine whey, and milk and burley-water with McIlin's Food should

be given.

With regard to medicines:—Emetics are useful at the beginning of the discusse. A drachm of increasurable wine, or half a grain of sulphate of expect discolved in a descent spoonful of water, may be given every ten minutes until romiting is produced. This remedy must not however, be repeated after the first two or three days as the strength of the child quickly hilk. Norcotics are to be avoided, for our object is in every way to promite cough in order to maintain efficient expansion of the severals and all the expulsion of secretion. The best form of naxture is that which contains all allies with attendants. Thus, we can order a few grains of bicarbonate of sole or potach with four or five drops of sal volatile and an equal quintry

of spirits of chloroform in glyceriae and water every three bours. Later, the infrasion of senega or serpentaria may be substituted for the water in the dranght. Medication by drugs is, however, as a rule, of very secondary appartures in the more acute forms of the illness; but if the disease occur as a complication of pertussis, the special antisposmodic treatment for that

When the inflammation runs a very subsente course much benefit is
often derived from the free administration of iron. For a child five or
an years old ten drops of the tincture of the perchloride of iron may be
given every three hours, freely diluted; and a rapid improvement, both
in the physical signs and general symptoms, often follows very quickly.

Directly the pyrenia subsides quinine and other tonics, and col-liver oil
should be given; and the child should be removed, as soon as he is fit for
the journey, to a bracing senside sig.

CHAPTER VI.

PLEURISY.

Primary is a very common disease in young subjects, and one which though seldon immediately fixed, often produces remote consequence of a very serious kind. In childhood the effected fluid becomes purelest at a very carry period; and the retention in the chest-cavity of a collection of purelent matter seriously hinders the autrition of the patient and may

lead to various forms of disease, both general and local.

Consistent.—Pleuriny is comparatively used during the first testing mouths of life. It becomes much more common during the second year, and after that age is one of the most frequently met with of all discuss of childhood. The inflammation may be primary or secondary. In the first case it appears to be often the consequence of exposure to charge of temperature; at least it is difficult to discover any other cause for it than a chill. It may be also excelled by mechanical causes, such as direct inflation from inpury to the chest-wall, or rupture into the chest-cavity of abscesses or hydratid cysts. Secondary pleurisy may arise from extension of inflammation from the long, the pericardium, or the peritoneum. They occur in the rourse of acute rheumation, scurlatina, meades, typical fever, small-pox, and inherited syphilis; and is very often a consequence of recal disease, and sometimes of inherituation.

Morbof Abuthous. —Inflammation of the pleura is usually confined to one side of the class, and may be general over that side or limited to sotain regions (localised or localated pleurisy). The inflammation begins with hypercuin of reseals and infiltration of the serous and subserous lines. An effusion of inflammatory lymph then takes pince, and of flaid which may accumulate to a large assount in the ploural cavity. The serous membrane is rough and instroloss, and becomes coated with a layer of efficiel lymph. This is at first merely a thin, coherent membrane; but gradually its thickness increases. The surface is sometimes ribbed or honeyconded in appearance, and we occasionally see strings or hands of hundrosing by tween the opposed surfaces of the pleurs, connecting them with see a other. The lymph consists of albumen, fibrine, and corpuseles derived from proliferating spathelium. It is at first loosely attached to the serces membrane beneath, but gradually becomes acces firmly adherent. Enab ually new vessels from in it, so that it is organised and converted into our nective tissue. In this way the opposed surfaces become firmly saided and the pleural cavity, where these adhesions occur, is obliterated

The efficient fluid is at first yellowish or greenish, and transparent, but it soon becomes turbed and opaque, and in children very quarkly purplent. The serous effusion contains both albumen and fittine, and completes spontaneously after removal. The put is usually quite leading in appearance and without unpleasant anell; but in exceptional cases it is dark coloured and very offersive. Sometimes it is stained or straight

with blood. The quantity of effected fluid is very variable. It may be needy an ounce or two, or may reach two or three pints. When thus exposes, the whole side is dilated, the intercestal spaces are widened, and neighbouring organs are displaced. The lung is compressed, and if, or senetimes happens, although very rarely in the child, it is bound down by a thick layer of false membrane, it may not expand again as the fluid becomes absorbed. In that case it leads to the same deformities as are noticed under similar conditions in the adult. It is, however, very rare to find a greatly contracted chest from an old pluming in the child. Even if the chest fall in at first, it will be often found to right itself in a surprising way in the course of time; and a child who was left with surved space and retracted one may be seen again, after an interval of twelve months, with a thest as symmetrical as if it had never been affected. It is mre to find a child permanently deformed by this means.

In some cases the amount of fluid is small. This is most commonly seen when the pleural inflammation is according to performitis, pericarditis, or promocia. Sometimes the pleural cavity, instead of forming one large alsess, may be divided into several distinct suce by false membrane and adbellous, so that one of these may be couplied without draining the others. It is not so very ancommon to meet with more than one localisted supprens in the same subject; and great difficulty is found in such cases in con-

pictory relieving the chost of its puralent contents.

A large collection of purulent fluid in the pleural earlity result becomes absorbed. If not removed by operation, a spot at some part of the chestwall—usually the lifth interspace in the inframammary region—is noticed to be red and very testler. This soon becomes prominent and forms a large superficial abscess, which, if not opened artificially, bursts and the passleady drains areay. By this means caries of a rib is sensetimes produced. The abscess does not always point low down. It may appear higher up in the class, as above the clavacle, or in an upper interesstal space; and I have known it to open in the supraspinous fosse. In some cases, instead of bursting externally, the purulent collection opens into a beoneless and the matter is coughed up through the lung. In others it perforates the displacem, and passes downwards like a poors abscess behind the peritoneum. Seiner in one case saw it open into the gullet.

Whether the fluid be removed artificially or escape by perforation of the chest-wall, it may after a time drain away completely and leave the potent copyalescent. Sometimes, however, a discharging sinus is left which removas open for years. In these cases anyloid disease of organs often

follows, or the child may die from general tuberculosis.

Symptoms.—The oreset of pleurisy, although sudden, is not often violent. Usually it begins with a feeling of chilliness, or in older children with a right, and with pain in the side, followed after an interval by cough. It is furly unboard in by a convulsive seizure, as is so commonly the case with pleurinenia. The pain is often severe. It is felt in the side or is referred to the epigastrium or the stomach. In infants who cannot speak, its existence is amounted by violent fits of crying, which may be excited at once by pressure on the chest as in lifting the child up. An older child complishe bitterly of the pain, and often gross evidence of his affering by the distressed expression of his face, especially if a cough cases any scalden movement of the side. There is also tenderness of the chest-wall over the seat of disease, for pressure is evidently painful. In addition to the above symptoms there is percently handache; the tongue is forced, there may be resulting, and for the first few days there is always fover, even in cases

where the temperature is afterwards normal. The pulse is quickened, and the respirations are more harried than natural; but they are not, as is the case with pre-monta, increased out of proportion to the pulse. Commquently, there is little or no percension of the pulse-respiration ratio. The cough does not usually begin until an approximate interval has passed from the onset of the illness. Often, for the first twenty-four or forty-sight hours, little cough is noticed. When it comes on at is hard and dry, and the increased increment of the chest walls by which it is necomparisely fixtle. There is by no means the nurked immendar prostration which is no noticeable a feature in passingoin. On the contrary, if the pain is not severe, the child seldom takes voluntarily to his bed, but will walk about an usual without my pronounced sense of fatigue. If the prin is sever, he is quiet and indisposed to court himself; but this inclination to rat a the consequence of pain, which is increased by movement, and is not has to any sense of muscular weakness.

The degree of fever varies. Usually for the first few days the tenperature rises to 102" or 103" in the evening, fulling to 30" or 100" in the morning. After the first week the fever may either persist, or the temperature may full gradually to the normal level. In a child of periodly boulthy constitution, if the pleuristy be primary and uncomplicated, the fever usually is moderate and quickly subsides. Persistent tigh temperture in a case in which the pleurist is primary and uncomplicated is usually

a sign that the putient is of strumous constitution.

It is not in every case that the onset of the discase is so marked as described above. The illness often begins insidiously and is only discovered by the pallor of the which, and the shortness of his breath on any energies. The latent form of the discase is especially common in infants, particularly if the child is suffering at the time of the attack from any westing discase. In those cases there is often no fover, or only a triding rise of temperature; there may be no cough; and attention may only be directed to the child by noticing that the child is breathing quickly and has less appetite than usual for his food.

The pain of pleurisy is negally only severe at the beginning of the Ilness, and often subsides as effusion takes place into the pleurs. This is not, however, always the case. Sometimes it continues with extreme tenderness of the affected side until towards the close of the disease. Union the tenderness be great, the child usually lies on the affected side for the make of giving increased freedom to the healthy lung, which has to in double duty as a respiratory organ. If the tenderness is marked the patient lies on his back. It is not often that he is seen resting on the send

mide.

If the disease continues for two or three weeks, the fluid usually becomes paralent. There are, unfortunately, no positive symptoms which indicate that the efficient is no longer serous. Even the time which has showed from the beginning of the illness is no positive guide, for in some children the fluid becomes purulent much more quickly than it does in others; and in exceptional cases it may be purulent from the first. The tixt of the face is, however, often a suspicious symptom. For many years I have been accustomed to note the colour of the face in children the entiret of pleating. In many it assumes a peruliar straw-yellow has which is unlike the complexion of any other disease. This symptom is rarely seen damp the first week of the illness, and seldom attracts the one before the col of the second week. If well defined, it is often cognistent with pursuit

change in the contents of the pleural cavity. Still, I have seen it well marked in a case where the fluid withdraws by the aspirator was perfectly clear. A boy in the East Lember Children's Hospital, aged six years, was noticed to have a most marked straw-yellow that of the face and neck. The left side of the class was full of fluid, which had peaked his heart into the epigastrium. With the aspirator, nineteen ounces of clear pale yellow fluid were withdraws.

When the fluid has become purulent (empyena) the child usually wrates; but great differences are observed in the extent to which nutrition suffers even in these cases. Much, probably, depends upon the temperature, as this may be taken to indicate with fair accuracy the degree to which the system is fretted by the purulent contents of the thorax. If there be much fever, wasting is rapid. The child has a distressed expression and becomes profoundly anionic; his strength diminishes; the stree that of the face may apread more or less over the whole body; the skin becomes dry and land, and the fingers got clubbed at the extremities. In very rare cases a trace of colemn may be detected in the logs without alluminaria; but I have known this symptom to occur only in one instance, and in this albumisama followed after a few weeks. Empyona in scrofolius subjects is almost invariably accompanied by fover. The temperature rises to 102" or bill at night, staking in the morning to the natural level. In children of healthy constitution the presence or absence of fever appears to depend in a great measure upon the natural nervous excitability of the child and his tendency to respond readily to any source of irritation. In many children with a chest more than half fall of purulent fluid the temperature is perand and the natrition fairly good; and although signs of ansmin may be zoticel, the strength and spirits are not greatly depressed.

The physical eiges in cases of plearisy in the child must be studied with attention, for they often resemble those of croupous passumonia very closely. On account of the weakness of rocal frequities in early life no assistance is to be obtained from the presence or absence of vibration of the chest-wall—a sign which in the adult is of extreme value in the detection of fluid. The assemblatory signs, also, may present so close a similarity to those of inflammation of the lung that, in themselves, without reference to the situation in which they occur, they are not distinctive of plaurisy. Indeed, in many cases it is only by a comparison of the physical signs with the general symptoms of the disease that we can arrive at an accounte conclusion as to

the nature of the illness.

On impection of the chest-wall we can often detect a certain impointment of merement on the affected side; but the intercestal spaces are not accessfully bulged and motionless even in cases where the amount of fluid is large. In young children, whose respiration is principally displangments, the walls of the chest more comparatively little in inspiration; and the dress inspection can often discover no difference in this respect between the two sides. Although the infercostal spaces may move as in health, the whole of the affected side is fuller than the other. It may not, indeed, as has been pointed out by De Gee, show any difference to the measuring tops; but the outline, as taken with the cyrtometer, is much aquater than listeral from a budging at the antero-lateral angle of the chest-wall. If the we cant of effection is more than moderate, the neighbouring organs are sisplaced by persours of the dust. The liver and spleen can be left none distinctly than in the normal state, and the heart's mex is pushed to one wir. In cases of right-sided plearity the spex is displaced to the left, and can be felt beating outside the nipple line. If the effecten occupy the left

side, the earline impulse may be felt near the ensidern criticge. Then
signs, especially the latter, according to my experience, are as well marked
in the child as in the adult, and should be always looked for. Displacement of the heart to the right is sometimes prevented by adhesions farmed
between the perioardium and the left pleurs. Sometimes an alteration in
the size of the leart may provent the displacement of the ergin from being
noticed. Thus, if the left contricts is much hypertrophisal, the uper-best
sinder ordinary circumstances is felt to the left of the night lim. In such
case displacement of the heart to the right by fluid in the left pleurs may
do no more than restore the spec-best to the normal position. A little
girl aged nine years with oblistanding heart disease and hypertrophy of
the left centrals, was admitted into the hospital with considerable pleuring
efficient of the left side. The heart's apex was felt heating belind the
sixth rib in the left niggle line. After absorption of the fluid the ordine

apex had moved one inch to the outer side of the nipple line.

Patenties of the affected side does not always discover obliteration of the intercostal depressions, although sometimes it will do so. Other, expectally in cases where there is little thickness of lymph lining the plears, a top with the finger between two of the ribs will be readily transmitted through the fluid to a second finger resting upon a distant part of the same interspace. Vocal vibration of the chest-wall is, as a rule, completely absent in the healthy child. Senotimes, however, if strong on the sound side, it may be conducted by the chest-wall to the other half of the chest, and he felt distinctly over the whole of the affected side. I have known this phenomenon to be present in a case where ten ounces of fluid was removed by pameentesis. Immediately before the operation the veril wibration was lattle less alrong than on the sound side. On account of its frequent absence, and uncertain value when present, vocal framous is not to be depended upon in the young subject. If, however, we can feel a distinct framitus over the sound lung, its absence over the affected side of

the chest is insportant; but this is exceptional.

On percussion of the affected side there is complete duliness with greatly increased sense of resistance. These are very important signs. In no formed pulmonary consolidation—except, perlops, in extensive filmed industries of the lung with secondary pneumonia-is such a dull flat note, with so marked a sense of resistance to the finger, to be found. The impression to the ear and the touch is exactly that derived from pervissing a thick block of wood. The dead, flat note is not, however, to be obtained all over the affected sole of the chest. In the upper intercestal spaces in front, and along the side of the spine behind, a tubular (tympanitic) note is often elicated, due to the presence of under-lying related lung-tissue; and in the infra-accillary region it is common to find a well-marked resonance, owing to the transmission of the storach note through the lower part of the fail This person-resonance is often a source of perplexity; but we usually find that on employing very gentle percussion in this region the note is dal. while a sharper stroke in the same spot produces a load resource such as was heard at first. It is very important not to be misled by this source of crafusion, for one of the distinctive marks of fluid in the plears lies in the general distribution of the doll percussion note on the affected side. In ordinary cases of plenrisy the Julieus extends all round the side of the chest, both behind and in front, although the upper limit of the drines rises to a higher level at the back than it does unteriorly.

Besides the general distribution of the dulness, the alteration of the percession note on cleange of position is a unhable sign of fluid in the chest.

If the amount of fluid is moderate, and is not confined within nervow limits by affections, it tends to gravitate to the most depending part, so that the side of the chest which is turned uppermost gives a clear note to the percussing finger. This sign is almost invariably present during the stage of

absorption.

The maculatory signs of plearisy in the child are often very peculiar. Sometimes, as in the adult, we find weak, almost suppressed, breathing over the area of delices, with an occasional graze or scrape of friction above the upper border of the offusion. Often, however, the signs are much less characteristic. It is not uncommon to find a loud blowing, tabular, or even ememons breath-sound over the scapula behind and in the axillary region. Sometimes this is heard almost as far as the base, and usually it can be detected below the level of the effected fluid. This character of the respiratory sound is not comfined to cases where the lung is consolidated from pasamonia, for it is often present when the temperature is normal. The youl resonance may be enargemented, and about the lower angle of the empela is frequently branchophonic. Often it has a pronounced agophonic quality. The bronchophomic character is not, however, always found in places where the breathing is broughial or blowing. Over a spot where the respiration is typically tabular, rocal resonance may be comportely suppressed.

The characters of the friction-sound in children are also peculiar. It is exceptional to hear the common rub or serupe which is so familiar a sign in the abilit patient. In the child the friction-sound has often a crackling or crepitating character, which to the inexperienced our is suggestive either of intra-than of extra-pulmonary mechanism. It has not known, the puffy character of prounomic crepitation; and is very superficial sounding, as if generated close to the car. Often, from the character of the softed alone, it is difficult to my whether it is produced in the lung or in the picture, especially as a large, hard, hubbling risonchus is sometimes heard, which is evidently of intra-pulmonary mechanism and is

due to enturn of the sir-tubes. This disappears after a cough.

The friction is not limited to spots in the plears above the level of the drift. In plearist, as in pericarditis, effusion does not necessarily suppress friction. It is not uncommon to hear an unmistakable friction-sound at a spot where immediately afterwards the aspirating needle withdraws several.

built to some

In cases where the effusion is very copious the symptoms may be distensing, and the child's life be placed in the greatest danger. This is especially the case when the fluid occupies the left side of the chest. In this situation it may push the heart so far to the right that the spex is felt beating under the right rapple. Consequently, the large vessels may be best out of their natural course, and great obstruction to the circulation may result from the interference with their califer. The healthy lung, hampened in its functions, may become emporged, and the difficulty in the ramen of blood to the heart may produce great congestion of the lead, face, and extremities. The child is seen setting up, gasping for treach, with an agenized expression on his dasky face. His syes are staring and congested; his bands and feet are purple; his skin is cold and bathed in sweat; the veins of the neck are swollen; his pulse is small, feeble, and frequent; and unless the distress be quickly relieved death is pertain.

Terminations —In cases where the fluid remains scross, it usually becomes repully absorbed. The general symptoms are slight and quickly

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subside, and the physical signs return to a state of health. In these cases dulness on percussion and weak breathing can be detected langur in the infra-actility region than obsenhere. If absorption of the fluid be slow, some retraction of the side is often observed for a time; but in such cases it is usually alight, and is seldem noticed to the degree which is so common after removal of a purulent fluid from the class. If shoopping is complete, the deformity soon passes away and the class recovers its

symmetry.

When the fluid has become purulent, absorption goes on very slowly. It is only when the quantity is very small that anything approaching in completeness of absorption is found. It is in cases of emprena that distortion of the chest is commonly noticed. The spine becomes curred with the concavity towards the diseased side; the shoulder, signly, and inferior angle of the scapula sink, and the lower part of the simplesblade projects backwards from the chest-wall. Such refraction of the affected side takes place before absorption has ceased. Indeed, as Dr. T. Barlow has very justly pointed out, the fact that retraction of the side has occurred is by no means a positive proof that absorption has been conplete-1. On the contrary, if the deformity continues without improvement. it rather tends to suggest the possibility of some ambarded purchas matter remaining at the base of the lung or between the lobes. In many of these cases a layer of cheesy matter is left coating the base of the langt and a quantity of thick creamy pass is often found on dissection reflected in a limited abscess on the surface of the displangue.

If the amount of paralent fluid is large, it somer or later, unless withdrawn by the aspirator, points at some part of the chest-well. If this recur is an upper intercestal space, the contained fluid cannot be completely
evacuated, and a continuous discharge occurs through the opening. The
child grows daily weaker and thinner. His breath is short; his face gets
sallow and often earthy in tint, with leadity about the eyes and month;
his fingers become clubbed; his digestion is impaired, his tempe feel
and his breath effensive; the liver and sphere become enlarged from albuminoid degeneration; the cough is spannodic and paneful; and the
child sinks and dies from authoria. Death may be preceded by profise
distribute, which, sometimes at least, is due to ribuminoid charge in the

coats of the bowel.

If the abscess point in a lower intercostal space, so that the clast cavity can be completely durined, recovery may occur without specific interference. I have not with at least one such case where, although there was at first some deformity of the affected side, this saturely deep perced; but it must be confessed that such a fortunate result is not conmon.

Sometimes the purelent finid, instead of discharging itself through the chest-wall, perforates a broachus and is coughed up through the long-Large quantities of purelent matter may be thus expectanted, but contrary to what might be supposed, no air enters the pleanal cavity midtle physical signs are not found to have undergone may special absention. Indeed, if the case terminate fatally, it is very rurs to find on the closest examination any direct communication between the long and the closest cavity. Spentaneous examinion through the long is not confined to make where no operative procedure has been attempted. It may also constater a part of the contained fluid has been removed by purecentess. This made of ending is often followed by complete recovery. If the pleanal cavity can be thoroughly suggested by this means, and the long is not

bound down beyond possibility of expansion, recovery may take place with-

out any permanent retraction of the affected side.

A fittle boy, aged five years, was brought into the East London Children's Hospital for an empyone of six weeks' standing. The affection compied the right side and appeared to be copious, for the intercostal spaces were obliterated and the heart's spex was felt beating to the outer side of the left-uipple line. On purcussion, dalaces was complete over the whole of the right side, both back and front; there was marked sense of resistaire; and the breath sounds, although blowing in quality, were excessively weak. The temperature was normal.

A few days after the boy's minission eleven ounces of thick, greenish, instances pas were withdrawn by the aspirator. After the operation the duliness and weak blowing breathing remained the same, but the interestal spaces had become visible, and the heart's apex had returned as for as the apple line. A week afterwards the boy coughed up twelve ounces of thick pas, and in a few days a further four owners. After this the percussion note was decidedly less dull; the resistance was diminished; and the breathing was load and inbular over the whole of the upper half of that side,

common below. Vocal resonance was loud and agophonic.

For some weeks the boy continued to spit up several owners of purulent matter every few days; and in the end made a perfect recovery without my contraction of the chest-wall. The temperature was normal as a rule; although sometimes it would suddenly rise to 100° or 104°, but never remained elevated more than a few hours. These elevations did not correspond with or precede the passage of pus through the long. A year afterwards the boy was realimited with nexter pleuricy of the opposite side (the left); and this attack also was perfectly recovered from

In many cases of perforation of a beonehus there is the same difficulty in completely excessing the pleural cavity as is found when the discharge takes place through the chest-wall. Sometimes the opening into the becorders closes, and pus censes to be expecterated. Retention of purulent matter then occurs, and the chest may become much distorted, or the

child, after a Engening illness, may die of asthenia.

Even when the operation of purscenteris is performed and the purulent find is removed artificially, the case is by no means necessarily at monet. Sometimes, after with drawal of as much fluid as can be made to pass through the aspirator, no further accumulation occurs; absorption of what remains in the pleural eneity goes on uninterruptedly, and the child is soon well. These cases are, however, exceptional. It is often necessary to repeat the operation several times, and not unfrequently, as the purulent fluid continuity reaccumulates, other measures have to be adopted as will to afterwards described. In prolonged cases, whether a fistula be present in the chest-wall or not secondary tuberculosis is liable to occur; and it is not very uncommon to fluid great subargement of the liver and spleen from anyloid degeneration.

Another occasional consequence of long-standing pleurisy is a fibroid change at the base of the lung leading to industation of the tissues and dilatation of brought. This subject is elsewhere referred to (see Fibroid In-

direction);

Farience.—Certain varieties of the discuss are commonly met with. In some cases the lymph exudation is unaccompanied by liquid effected splanfie or dry plearisy). In others, the inflammation, instead of being general over the whole side, is confined within certain limits (localised or localisted plearisy). In others, again, the disease may attack the two sides simultamonely. Double plearing is often in the child the consequence of taker-

Plantic Pierrico, although sometimes primary, is for the most part in young subjects according to some other disease. It is common is case of phthisis, and sometimes occurs in the course of cataviral precursors. By or plastic pleuricy is often overlooked, as it may give rise to but few symptoms, or to symptoms so slight that they are masked by the other more prominent manifestations of the disease in the course of which they have arisen. This form is of little importance. It is usually accompanied by some pain in the side and a tensing cough. On examination of the chast, dulness is discovered at the sent of pain, and a little crepitating friction or a superficial cub can be beand with the stethoscope. The inflammation leads to adhesion between the opposed surfaces of the pleurs.

Localated Pleasing is very common in children. The inflammation may occupy any part of the serous surface. It may be limited to the membrane covering the displangm or to that surrounding the base of the long; it may be scated at the upper part of the pleural cruity, such as the infra-cludeslar region; or it may occupy the space between the lobes. In many cases the localisation of the disease is due to old adhesions resulting from a previous attack, so that the fluid thrown out is prevented from gravitance diseases and or spreading over the peaceal easity of the pleura; but in

others no history of a similar illness our be discovered.

In ordinary cases of loculated pleurisy the general symptoms do not differ from these met with in the name common form of the discuse. But the physical signs are more characteristic. Over the collection of find the percussion-note is completely dail, with great sense of resistance; the repiration is weak, and may be of beonehial, blowing, or enternous quality; there is soldon any friction-sound to be heard, and the vocal resonance is ordinarily suppressed. Such signs may be discovered over the whole freet. of the chest; they may be limited to the infra-devicular or infra-manuary regions; they may be found in the scapular region behind, or at the lower part of the axillary region at the side. The most difficult to detect of these partial pleurisies is no doubt that variety in which the inflammation and effesion are confined to an interlobar apace. In such a case there may he considerable retraction of the side from compression of the burg; or the physical signs may occupy so limited an area as to eneme recognition, sol there may be no deplacement of the hourt. After the fluid has become perment, the cough, the westing, and the cachectic appearance of the child, coupled with the insignificant character of the physical signs, often suggest taberculosis.

Disphragmatic pleurisy is rare in the child. The disease begins saldealy with a severe pain shooting across the chest and great apprector of breathing. The child sits up in bed with a distressed face. His skin is lot, and every attempt to draw a deep breath is a cause of great suffering. The physical signs are often very indefinite; but notally some duboss may be discovered at the extreme base on one side, with weak breathing, and often after a day or two the ordinary signs of pleurisy can be detected at the lower part of the same side; for disphragmatic pleurisy rarely remains limited to the disphragm in early life.

Talescenters Proving.—When plearing occurs as a consequence of tuberculous, it is usually double; but every case of double plearing in the child is not necessarily tuberculous. Nor, again, in every rule of plearing in a tuberculous subject is the serous inflammation always secuslary to the distinctic disease. It has been already stated that tuberculous is a common sequel of empyons of long standing; and a parallel collection in the chest procedes tuberculosis much more often than it follows it. In cases where pleurisy is met with as a secondary disease the inflammation is usually of the plastic variety; although sometimes there is also serous or purulent effusion in the chest-cavity. We can only my positively that interculosis is the primary disease when the symptoms of the constitutional multily—wasting, moderate fever, less of colour and strength, a distressed expression of face and occasional cough—have precoded by a definite interval the local signs of serous inflammation.

When inherentosis follows empress the temperature, if it had embedded, rises to between 191° and 192° or higher every evening. Inling again to between 197° and 190° in the meraing. The child loses flesh, colour, and strength more rapidly than the condition of his cheet is sufficient to explain. His face is happard and curemom; his skin harsh and dry; often diarrhom comes on; sometimes he remits; his belly swells; and an attack

of basis meningitia usually brings the illness rapidly to a close.

Completition.—Besides tuberenlosis and anyloid disease of organs (which have been already alleded to), there are other complications which may be present in cases of pleorisy. Proposition is not uncommon as an accompaniment of the pleoral inflammation. This subject is referred to the there (see page 158). Moreover, serous inflammation in the chest sometimes spreads upwards from the peritonous. More often, however, it penetrates downwards through the displangua to the abdominal cavity. It is

then mustly fatal (see page 685).

Dispussion.—On account of the resemblance of its physical sigms to those
of parametria, pleurise is often mistaken for that discuss. The difficulty
in making the distinction is due principally to the absence of total framitus
in the child; to the occasional load blowing or tabular breathing which is
often heard over the scat of doliness; and to the crackling character of the
friction, which suggests rather an intra-palmonary crepitation than a
pleural rab. In order to distinguish between the two discusses we must
take into account the mode of invasion, the nature of the symptoms, and
the character of the physical signs; for in all these points great differences
are to be observed.

The occurrence of pain in the side and fever, followed after an interval by cough, is characteristic of plentisy. In pneumonia cough is usually present from the beginning and pain in the side, unless pleurisy accompeny the inflammation of the lung, is moderate or absent. The after symptoms also are different. In picurisy the cough is dry and painful; the pulse respiration ratio is unaffered; the face is puls or congested at first, afterwards straw yellow; and there is little loss of muscular strength. In paramonia the cough occurs in short backs, recompanied in the older ekildren by the expectoration of rusty sputure; the pulse-respiration ratio is perverted; the face has a bright flush on the checks; and muscular prostration is a marked feature. The physical eight also are distinctive. In picturisy the chest, even if not enlarged to the measuring tope, is square in outline; the heart's spex is displaced; the dulness is complete, the note being perfectly flat, and the sense of resistance to the finger extreme; the tempiratory wounds, although they may be as tubular as in a case of typical prinorary inflammation, are always less load at the base than above; and the ceaching friction has not the "puffy" character of pneumonic crepitation. The eldef difference, however, consists in the fact that in an ordinary tion of pleurisy the almormal physical signs are found both at the back sud front of the affected side. In presmonts there is no displacement of

the heart's apex; the disliness is not complete; the sense of resistance, although greater than natural, is only moderately increased; the resonance of the voice at the angle of the scapula is never apophonic; and the physical signs, unless the inflammation occupy the spen of the larg, see limited to the anterior or posterior aspect of the chest, and are only in

very extreme cases found over the whole of the affected side,

Between an ordinary case of picuritic effusion and an erdinary case of lober influentation of the lung the differences are so great, that there is little difficulty in neaking the distinction. But to decide between a localised plearity and a case of lobar passimonia is not so easy. Still, evan here, by attention to the mode of invasion and the sharacter of the some toms, and by remarking that, although limited to one aspect or one region of the class, the percussion-note is completely touriess, the sense of Hasistance is extreme, and the weak breath-normal is not accompanied by crepitation at the borders of the dull area (for, in localised plenrier friction is turely to be heard), we can usually come to a satisfactory conclusion. The very fact of these physical signs continuing for a considerable time :changed is in itself a strong argument in favour of the plearitie ratus of the complaint. Dr. Wilks, indeed, lays it down as a rule that local dalness with distinct tabular breathing, or absence of breath-sound, pensisting after an inflammatory attack in the class, indicates the presence of a local emprenne; and if no adventitious sounds accompany the respiration, we may, no doubt, commit ourselves to this disgnosis without hesitation.

Or limity cases of cutarrial premionia, where the inflammation occupies both langs, can rarely resemble plearing closely enough to be mafounded with it. Unless the enturbal amountonia be accompanied by plastic. plemier, the percussion-note is only moderately dull; the resetance is little increased; there is usually load tuleshir or cavernous breathing at the eptrense base from dilatation of the bronchi; and the profuse empiration has a crisp metallic quality which bears little resemblance to the sound produced in an inflamed plears. It is in cases where the calumbal inflammation occurs secondarily in a long which is already the seat of fibroid industion that a real difficulty is found. Here the inflammation is confined to one long and spreads rapidly, so us to involve the whole thickness of the Consequently, the long, already indurated by the fibroid change, grees a character to the percussion note which is indistinguishable from that produced by pleuritic effusion; and we find a complete, tursless dainess with marked scare of resistance all round the affected side-both at the lock and front. In the indunated long, however, the talular or carerrors breath-sound is accompanied by a large metallic bubbling theories. In pleurier the breathing is usually accompanied by no adventitions round; but if a little propitating friction be present, it is much drier in character, and has not the load ringing resonance which is given to a rhonding ganerated in a rigid dilated air-tube. In both the vocal resonance may be broachophoric, but in presmonia it never his an egophoric quality.

Collapse of the lung in exceptional cases may present a very close resomblement optionist; but the dulmess on percussion is rurely so complete, and the sense of resistance soldom so great in collapse as in field efficient. The resistance in the latter case to the percussing flagre is an element of the atmost importance in the diagnosis, and is only equalled in point of intensity by a fibroid industrian of the lung with superadded caterrial

presuments, as already described.

With regard to the varieties of pleurisy, it is often very difficult heavy whether the fluid is serous or purulent, or, indeed, whether the physical signs are not due to a costing of lymph without liquid afficien at all. If a charge in the percussion-note and the character of the physical signs fellows a claume in the position of the patient, the presence of fluid is placed beyond the possibility of doubt. But if no such characteristic sign of fluid can be discovered it is no proof that fluid is not present. The effusion our be kept in place by adhesions, or there may be sufficient lymph. costing the pieura to produce a dull percussion note, although fluid be no longer in contact with the wall of the chest at the point of examination. An agrephonic resonance of the voice is a certain sign of effusion; but its absence is by itself no unflicient proof of the absence of fluid. If, however, the entire of the affected side be elliptical and the heart's spex in the nutural position; if the intercrotal spaces sink in normally, the percussionnote he stall in all changes of position, the respiration be weak over the affected side without blowing quality, and the vocal resonance not at all symptonic, it is almost certain that no fluid is present. Even here, howent, no positive conclusion can bearried at, for with such signs there may be an enquired collection of you at almost my part of the chest.

The distinction between a serous and a purelent effusion is very difficult. No information can be gained from the temperature, for this may be sireated or not without reference to the character of the fluid. It is often ligh with a serous effusion and perfectly normal with a large purelent reflection in the clost. Again, the physical signs are the same whatever be the nature of the pleamal contents; for Bacelli's sign (i.e., the clear and attribute conduction of the whateverd voice to the chest wall as indicative of series and exclusive of puralent effusion) has not undertountely the value attributed to it by this physician. The fint of the face, however, if the complexion have assumed the stress yellow hor, although not a decisive proof, is very suggestive of suppresses; and marked clubbing of the importants, according to Dr. T. Buriow, is never the consequence of serious effusion. In every case of Joulet an explanatory practure, with the hypothermic migration strings, by withdrawing a specimen of the fluid, will at once

sleep is the question.

Hydrotherax is as a rule resultly distinguished from plenning by noting the evidences which are always present of interference with the general circulation. Dropsy of the pleura is almost always a part of general ansarets. There is disease of the heart or kidneys; the effusion occurs on both sides smultuneously; and there is also assites or more or less general colonia.

Proposition In cases of pleurisy the prognosis depends in a great measure upon the age and constitution of the shild. Under the age of six months the disease is a very serious one, and often ends in death. After that early period the prognosis is good, as a rule, if the child be not the subject of a distinctive tasts. The scredulous labit is, however, a distinctly unfavourable element, for although the disease may eventually and happily, the finid tends to become quickly purulent; the fabrile excitament is usually great; interference with notificion is marked; and not unfrequently the fluid is continually reproduced as often as it is exacusted.

If the fluid remain serous, recovery is certain unless the fluid accumulate to such a degree as to dislocate the heart and interfere with the passage of the blood through the large vessels. In such cases death may occur unless the shift be supidly relieved by operation. When the fluid has become

It may be observed, with regard to making exploratory punctures, that the operation is less pulaffel if a spot be adjected where the skin is then, as in the action, than if the Bredle he introduced in the back, where the cuits is thick and necessary.

purulent the prospect is more serious, but less so in childhood than in after years; for if proper measures be adopted a large majority of these cases recover. A high temperature is an unfavourable sign, and the continuance of the pyresia after discharge of the purulent matter by operation should occasion great anxiety. Still, even in these cases recovery often follows. Again, the sublice sinking of the temperature to a point blice the level of health is, as Wunderlich has pointed out, a sign of unfavourable import.

If the empyons heret spontaneously through the sheet-wall, recovery rarely takes place unless the opening be sented in a lower intercoral space, or unless an artificial opening be established in a more unitable position. Spontaneous cure is more likely to follow evacuation through a brenchus; and a large proportion of these cases get well. Still, if the elecumotances are such that retention of purulent matter takes place, the

child, if left alone, may aink exhausted.

Petor of the pas is a bad sign. Unless prompt antiseptic measures are

adopted, these cases always and fatally.

Secondary plearing is much more dangerous than the primary form of the disease. The fluid is more likely to become purulent at an early date; and the child, strondy weakened by his first illness, is in an unfavoumble condition to support the rahausting influence of a chronic empremaupon his natrition.

Treatment.-A child attacked by acute pleurisy should be at once put to bed, for absolute rest is of the highest importance. A felerature manture should be ordered and the diet should consist of milk and broth. If the pain in the side be severe, a leach or two may be applied if the child is robust; or a hypodermic injection may be given containing one-aveilth of a grain of morphia for a child of four years of age. A firm bandage round the chest is often successful in giving great relief; and a thick hyprof wadding around the affected side is useful for the sake of warmth. Suns physicians advocate a careful strapping of the chost over the affected hug with broad strips of adhesire photor. I have made use of this plus, but cannot say I have noticed any distinct advantage from its employment. In displanguatic (dearisy where the pain is severe, a family applied bundage to the abdomen, so as to limit the action of the disphragm, often affects mat. The bowels, if confined, must be relieved by mild sperients, such as the liquid extract of rhangus frangula or the compound liquides powder; but violent purgation is hurtful and should be avoided. Mencury, the favorrite remotly in former days, is now seldom recommended. Still, in some cases, one grain of gray powder given twice a day, with in equal quantity of quinine, or with free grains of the perceide of iron, has sometimes exmed to me to be beneficial. Indide of potassium is, however, usually to be preferred, and this sait, given in full doses, I believe to be of distinct advantage to the patient. I am in the light of ordering for a ethild of four years old, five, eight, or ton grains of the indide, to be taken every six hours, and look upon the remedy given in such above as a value able promoter of absorption. The internal remody should be always supplemented by complex-irritation of the chest-wall. Directly the temperature falls or earlier if effusion appears to have ceased, the language fineture of fedine (according to the sensitiveness of the skin) should be This application is most usepainted over a limited surface every night. ful if applied over an area of two or three inches in diameter—repairling the same on each occasion. When the skin begins to look dry and cracked, snother spot is selected, and the process is repeated regularly as below.

If after a week, the fluid remains stationary, without sign of absorption it is better to change from the iodide to a chalybents, or to add five or six grains of the turirate of iron to the mixture. In scrofnious children, when affinion has consed, it is advisable to improve the diet; and pounded ment, strong ment broths, yolks of eggs, and moderate quantities of afin-

clast are usually required.

If at the end of a fortnight the effusion has been unchanged in amount, it is probably purelent. An exploratory puncture should be made with a fire needle syringe, and if pas be withdrawn, measures should at once be taken to eracunte the cheet. If the flaid is found to be across it is admissible to wait for a few days, for this small operation and the obstruction of seen the limited quantity withdrawn by the test puncture, may act as a stimulus to absorption and be followed by the most removal of the fluid by natural means. At the same time the quantity of liquid then by the child should be restricted; for a dry diet in such cases by stinting the blood of fluid often greatly promotes the action of the absorbest towards.

Often when efficient is undoubtedly present the introduction of the exploring needle is followed by no appearance of fluid; or although pushes been withdrawn by the test paneture the espirator needle is introduced without any result. The instrument may have entered the electricity at a spot where the lung is adherent to the parietos, or the layer of false membrane liming the plears may be so thick that the needle falls to practice into the size. In choosing a place for the paneture it is advisable to select one where the dulness is complete; and it is well, as Dr. Alibutt has suggested, to look for a spot where there is bulging of the intercostal space, as here the false membranes are somety and thin. Often it is necessary to puncture several times, on each occasion selecting a fresh spot, before we succeed in obtaining evidence of final.

In some cases the difficulty met with in withdrawing the finid is due to rigidity of the chest-walls. If the walls of the empyons cavity carnot collapse, there is no expelsive force to drive out the fluid. As Mr. R. W. Parker has pointed out, the pleural cavity is emptied by the pressure of the almosphere acting in three different ways. It acts on the condensed lang esusing it to re-expand, on the displangu causing it to second, and on the thoracic wall causing it to fall in. If for any reason pressure connot be brought to bear on the confined flind, no amount of excluse force will have any power of withdrawing the liquid contents of the chest. In not a few cases, the aspirator being found to be uncless and no thad appeuring after repeated punctures, we are forced to incise the close and insert a drainage-tube in order to example the pleural oxity. Mr. Parker has devised an apparatus to most this difficulty, by means of which filtered. warmed, and enrichised air can be pumped into the upper part of the chest while fluid passes out through the aspirator needle introduced into the lower part.

The above are not the only causes by which therecentesis is rendered difficult. Large thick flakes of lymph may be present and obstruct the opening of the needle or drainage tube. A child, aged one year and right senths, was admitted under my care into the East London Children's Hospital, with the physical signs of a large effection on the left side of the chest. As exploratory puncture showed pas to be present. Many attempts were made to aspirate the chest, but only small quantities of past entit to withdrawn. After repeated failures it was determined, in constitution with

my colleague Mr. Parker, to incise the wall and put in a drainage-take. This was done, but even then pus did not flow freely. Mr. Parker than put in his farger through the opening in the chest-wall and found large thates of thick membraniform lymph which had to be removed by the face-caps. A large quantity of pus was then expelled, containing smaller thin of lymph, lessides pultareous matter. Listerian precaminous were observed.

and the case did well.

When the effusion of fluid has accumulated to such a degree in arrivally to hamper the circulation and produce a sympotic that of the skin the aspector should be used at once, as instant relief is required to arert dense. If, however, the effusion be more moderate and no danger be anticipated the question of operative interference will depend upon the nature of the placend contents, and the presence or absence of signs of absorption. If the fluid he paradout there is no hitchinsol of a spontaneous cure by absorption. Therefore retention of the purulent contents can in any mass only do haven; and in civilizen with tubercular or screenings to tradencies a collection of pus should not be allowed to remain in the clast a day larger than is necessary. Even if the fluid be still scrous, it is well to remove if it after three weeks no sign of absorption has been noticed. In many of these cases the serves fluid is not renewed after surplying the clast; and often if only a portion of the contents be straumed the remarkler is rapidly taken up by the absorbent vessels.

In cases of emptyons it is best in the first instance to employ the apprator, as sensetimes after the classi-cavity has been evacuated by this means the fluid is not reproduced. During the operation the child should be in a semi-recumbent position, supported by the nerse, and the needle should be introduced, as recommended by Bouchitch, in an interspace immediately below the inferior angle of the scapala, unless the emptyons be localited. The operation often provokes cough; but this may be disregarded unless it grow excessive, in which case the peedle may be withdrawn. If there he say sign of faintness, we should at once remove the aspirator and close

the wound.

Sublen death, although fortunately a very ancronson catastropic, a semetimes a consequence of the rapid withdrawal of finid from the deat. The accident may arise from syncope, from rapid interference with the function of the healthy lung, or from secretaril embolism. If the effects have been explores enough to produce marked cardiac displacement and interfere with the calculation through the large vessels, the massnir solutions of the heart may be in a state of temporary and matrition from bound been supplied for some time with imperfectly purified blood. The sudden withdrawal of the pressure, combined with the slight shock of the operation, may so impress the weakened organ as completely to purified its action; or if this is borne without result, a sudden moreometr of the partient which throws extra work upon the circulatory centre may presented.

Dualth some times occurs through asphysis. The disappearance of field from the pleam is followed by an affire of blood to the capillaries not only of the lately compressed lung, but also of that on the sound side; for the latter has been likewise relieved from pressure by the return of the heart and mediantimum to their normal position. If the effus of blood become a distinct congestion, acute colonia may result, unless the result return sufficient tonicity to couble them to resist the abnormal pressure. Again, corolard embelism may occur, as in a case reported by M. Vallin in which this observer attributed the catastrophe to the stables discappenent of Sheinous alots which had formed in the pulmonary wins of the affected side. Such clots are liable to become detached as a consequence of exparason of the long, of a sudden movement, or of washing out of the pleural cavity.

If a single opening allows of perfect smanning opening is to be preferred. If a single opening in the chest and introduce a drainage-tube. Opinious are divided as to whether a single or double opening is to be preferred. If a single opening allows of perfect smannion of the pleasal envity, it seems to be preferrable to a double aperture, for the drainage-tube passing from one opening to the other may, as Dr. Allbutt has suggested, act as a seton and keep up a constant irritation. If a single opening be made, the upot selected should be at some point on a level with the lower angle of the scapein. One end of the drainage-tube should be passed through the spaning, and the other may be allowed to dip into a large bottle half fall of water. The operation should be performed with antisoptic presentions. If eldereform be given, great one must be exercised in its administration. It is better to do without amosthetics and produce local insensibility by

freezing the skin at the site of the operation.

After the take has been inserted the class should be bound round with an antisoptic binder, and the pleural excity may be left to drain steelf. It will not be necessary to wish it out with disinfecting solutions unless signs of decomposition have been noticed. If, however, the pus which flows after the operation is fetal, injections of a solution of fooms may be emplayed, dibuting one drachm of the tineture with one cance of water; or carbolic acid may be used diluted with thirty times its bulk of water. This mixiate will not be required when the pass continues to be perfectly sweet. In each cases the introduction of antiseptic solutions seems to keep upas imitation which it is desirable to avaid. Moreover, the operation is usually distressing to the patient, and is not without danger, for syneepe and other alarming symptoms have sometimes been seen to follow the introbaction of the fluid. In cases where the supposts is fetid, Mr. R. W. Picker recommends a double opening to be made in the chest-wall through which the dramage-tube can be threaded, and prefers, to injections of an artiseptic fluid, placing the child daily in a warm both with sufficient lepth of water to cover the upper opening. The water can be medicated, if desired, by a weak antiseptic solution. It is needless to say that all instriments used in operation upon such cases should be scrapulously clean and be carefully disinfected before use.

Complete diminage of the easity is followed in most cases by great improvement in the condition of the child. His temperature, if it had been elevated, fulls; his appetite improves; and if distribute had been present, the shall become fewer in number and mach healthier in appearance. Any after-distribute of the temperature or return of the signs of distribution should lead us to suspect some retention of fluid in the pleumi cavity, or the onset of some complication, such as a secondary tuberculosis. In the first one if will be well to much sent the close thoroughly. In the second, special measures must be reserved to for the treatment of the complication. If sometalary tuberculosis have come on, the prospects of the child are most giveny, and little can be done to arrest the deserward progress of the dis-

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In cases where the above method of drainings fails to bring about clours of the carity, owing to imperfect expansion of the lung or rigidity of the chest-walls, which are slow to adopt the assertes to the diministral size of the organ, resection of a portion of the rib seems often to be of alrea-

tage in belping the disease to a favourable termination.

In all cases of chronic empress the strength of the child should be apported by a free supply of nourishing food. Meat (pounded if necessary) strong meat assence, milk, eggs, etc., should be given in quantities such as the patient can digest; and port wine, St. Raphael tannin wise, or the brandy and egg mixture should be offered in sufficient doses. Cod buy oil is also, especially in children of acrofulous constitution, an important addition to the treatment.

CHAPTER VII.

COLLAPSE OF THE LUNG.

Concaves of the lung is a common lesion in infancy. In some new-horn bubbes the lungs after birth are imperfectly expanded so that the alveolisher a larger or smaller area remain closed as in the futal state. This variety is called oxygenolal atelectors. In other cases, although perfect expansion has been effected after birth, and the respiratory functions have been thoroughly established, collapse is induced in the lung as a consquere of disease, and a tract of variable extent becomes again condensed and airless. The latter besien, which is called post-matal atelectors is more examen than the former, and indeed is one of the most familiar of positionary lesions in the young child. These varieties will be considered separately.

CONSECUTAL ATELECTASIS.

This variety of pulmonary collapse was first described in the year 1832 by Dr. Edward Jöng, who gave it the name which it still retains. Congenital at lectures rarely occurs except in feeble infants, such as have been been prematurely, or are the offspring of weakly mothers, or have entered life under conditions undecourable to the efficient establishment of the respiratory functions. A tections labour producing long compression of the cord; too energetic uterine contractions causing a too energy separation of the placents from the womb; a low temperature of the external air; a high temperature with imperfect ventilation and dediciency of oxygen—the imperfect expansion has been attributed to all these causes. In addition, the presence of mness or fluid in the nir-tubes may not as a direct exchanged impediment to the entrance of air and prevent the inflation of a part of the

pulmonary tissue.

Norbid Anatomy.—On inspection of a long which is the scat of this lesion the unexpanded portion is at once recognised by its dark red or purplish colour, contrasting with the rosy that of the inflated tissue. Being perfectly siriess, it looks shounken and depressed, does not crepitate when appeared, and feels tough and dense like soft leather. If a portion be cut out and placed in water, it sinks instantly to the bottom of the wasel. On examination of the cut surface with a lens, the outline of the sir-cells may be visible; but if the child have survived for some weeks, the vesicular structure can often hardly be perceived. The parts of the larg which thus remain nirless after birth are most commonly the least bulky portions, such as the thin lower borders of the labes, especially the inferior lobes and the middle labe of the right long. Often however, the collapse is not confined to these parts, but extends for some distance over the posterior surface, and penetrates pretty deeply into the organ.

If the child die early, the unexpanded lobules can be readily inflated after death by a blow-pipe pussed into the bronchus; but if life has been

prolonged for a period of weeks, re-inflation is not so easy and may only be effected by the expenditure of considerable force.

In cases of congenital atelectasis other parts besides the large often remain in the fortal state. The foremen evale is usually open, and perhaps

the ductus arteriosus may still remain unclosed,

Supplied - In a new-born infant, when expension of the large is inperfect, the rhild is usually small and ill-neurished. His appearance and number show great want of power, and his massles feel soft and fidde. Bis complexion is slirty white or pale, with lividity about the sychole and mouth. He lies quietly without universest, and seems very apathetic soliton attempting to erg. If he do, he utters only a feeble whimper and never makes a loud sound. Often he marely draws up the corners of the mouth without making any sound at all. The fingers and loss are of a dark red or purple tint, and feel cool to the touch; indeed, the internal temperature of the child is below the normal level, and often reaches only 97.5 in the rectum. The respiratory movements are not laboured; in the contrary, they are shallow and short, and evidently expand the disavery insperfectly. As in all cases where the buses of the hungs full to enpend in a young child, the corresponding tibs sink in to a certain ersert at each insulmation. Still, on account of the feeblesess of the inspectors morements the depression at the bases is less noticeable than it is in tone other diseases. When put to the breast the child is malde to suck and has to be fed with a syninge or a speed. Semetimes be cannot seafler, The pulse is very feeble and the fontanelle is more or less deeply depressed A warm both seems to revise the child for the time, and even gives a little colour to the skin , but after reasond the infant sake into his former detireosciati.

An examination of the chest famishes little information. If the incapanded area is small, we may detect no sign to indicate the entire of the lesion. There may be a little want of resonance at the bases of the large posteriorly; but on account of the small size of the thorax at the period of life, and the facility with which sounds are conveyed from one part to the other, the resicular normal may appear to be as load at the bases as at my other part of the chest. It is only in cases where the stalages is very extensive that any suppression or alteration of the respirator

sound can be detected.

The after symptoms vary according to the extent of the sacless parties of the lungs. If this be considerable, the weakness continues; the healiing remains shallow and short; lividity increases; the eyes are intrindes; the pupils dilated, and the skin is cool. Soon the temperature falls still further, twits her and spasses die movements are noticed in the fire and limbs, and the child sinking into a state of stopor, dies applyingted on the

second, third, or fourth day,

In the less severe cases, or in cases where judicious treatment has secceeded in increasing the area of inflated thome, the child at first my seem
to be going on well, although he never sublicits in his movements the vigour
of one whose longs are well expanded. His movements are more or less
languid, and he suchs feebly or cannot be persuaded to take the bottle or
the breast. After a time he seems to grow weaker and can only be legiwarm with difficulty. His respirations get more and more shallow salhis cry feebler. The child is always sleepy, and lies dosing with infl
mouth and systids, the latter often incompletely closed. The featurile
is depressed. From this point he may sink gradually and die after a
series of conveniese fits, or may be reused by energetic treatment which

again inflates the closed air-cells. But in such a case although the child may be apparently restored, the unfavourable symptoms usually return, and it is rare for the patient to recover. In most cases after a time remedies seem to be usuless and the infant can no longer be revised. Thrombons of the carefulal sinuses, according to Stiffen, is often found in these cases.

Even in cases where recovery is apparently complete, the lung is not always perfectly expanded, and a slight enturin may cause sublem and mexpected doubt. Mr. W. Burke Rum has related the case of a child, aged for treeks and in good condition, who one evening was noticed to cough, and the next morning died quite soldenly. On examination of the body, both lungs were found to be shrunken and family contracted so as to inverthe greater part of the pericardiam exposed. They wask instantly in water; and when cut into hittle pieces, not the smallest let floated. An examination with a small less showed us trace of cellular structure, and an examination by Mr. Quekett of small sections with a higher power discovered many of the absorbit to be filled up by small grantles or cells which pendered them solid.

Cases of composital atelectasis which recover completely are usually those in which energetic treatment has been adopted within a few hours of birth and has resulted in healthy inflation of the whole lung. In the legiming this may be often accomplished, but delay leads to such change in the closed air-cells that they can be rarely sufficiently inflated to take useful part in the respiratory process. Moreover, from the observations of F. Weber and Stiffer, it appears that in cases where the child survives with permanent atelectasis of a portion of the lungs, the constant obstruction to the polynomizy circulation leads to hypertrophy of the right side of the heart prevents the closure of the formum come and ductor arterious, and may contually induce hypertrophy of the left surish and ventricle.

Express.—The history of these cases reveale a constant state of weakness and torper. This want of power, combined with Existity of the face, subdity to such shallow breathing, and low temperature, is very suggestive. If is addition we notice the signs and symptoms of imperfect expansion of the class, and on a physical examination fail to find evidence of marked consolidation, we can have little difficulty in ascribing the symptoms to

their true origin.

Proposis.—The prospect of recovery depends partly upon the cause of the atelectusis, partly upon the strength of the child, and partly upon the period after burth at which restorative measures are adopted. If the imperfect expansion of the lungs be due to some obstacle in the tuben themsides, or to some temporary accident occurring at the time of birth, the child's strength is usually good and treatment employed promptly is gensually successful. If, however, means are not adopted early to enforce expansion of the unused alreed, the prognoses is little less universale than when the relactusis is due to general weakness of the potient. In the latter case the chances of pernament improvement are not good, but vary according to the strength of the child. The unfavourable signs are: inability to each; increasing limiting; a sub-normal and falling temperature and great apathy of manner. If the child coses to be able to swallow, or if tonic or closic spasms are noticed in the muscless of the face or limbs, we can exterior little hope of his recovery.

Toutsteet When a child is born apparently lifeless after a tedious bloor measures must be at once adopted to premote efficient expansion of the longs. It is important, however, that whatever is done should be done with due deliberation and cars, avoiding unnecessary leavy or violence. In a new-learn infant the organs are especially tender, and may be fatally injured by boodless energy. Cases have been met with in which the liver and spicen have been suprared by an over-conlous penchicage in his haste to promote inflation of the lungs. The chest of a new-horn infant is in a state of absolute siriesaness; and therefore methods of resmcitation which depend for their success upon elastic recoil of the classwalls are without any value. So, also, the method of mouth-to-mouth insufficien pressing at the same time the larger backwards assent the guillet so us to close the latter passage, fails to introduce air into the lange. Dr. F. H. Changueys, from a series of elaborate experiments upon the bodies of new-born infants, concludes that the best method of remarks and is that of Dr. Sövesten. The child is hid on his buck on a table with a pullow under his shoulders, and the operator standing behind the light graspe the arms above the elbows and everts them. He then in successive movements mises the arms upwards by the side of the child's head; extends them gently upwards and forwards for a few seconds; then turns them down and presses them gently and firmly for a few mements against the sides of the chest. While this is being done the tourse should be held forwards by an assistant. The movements should be repeated aftern times in the minute, and should be continued for at least half an hour if so arefactory result be previously obtained.

M. Greult advectors playing the infant in water as het as the hard can bear—which he finds to be about 113° F.—and employing artificial respiration while the child remains in the bath. He relates the case of a primipura who after a tedious labour was delivered by foreign. The infant, when been, was breathless, cold, with scarcely any movement of the heart and but feeble pulsation in the cord. The child was at once placed in water which felt hurning hot to the band, and artificial respiration was begun. At the end of one minute the skin reddened, and a slight movement of the chest indicated the beginning of respiration. At the end of two minutes the child began to any to breathe, and to move his limbs.

In cases where the infant breathes, but is evidently labouring under imperfect expansion of the lungs, he should be warmly covered or conwrapped in cotton wool, and kept perfectly quiet in a room heated to a tenperature of 70" or 75." The best position is that recommended by the lose Dr. C. D. Meigs, viz., upon the right side with the head and shoulder raised at an angle of 45". If the patient cannot suck he should be fed with breast milk or some efficient substitute, as directed elsewhere (see year (03) The facel most be given with the syringe and clustic tabe (see page Stimulants are indispensable. Five drops of bready can be given in a syringeful of the food every two, three, or four hours, or the child may be fed with white wine whey. If the bridlity increases and other unfavourable signs are noticed, attempts should be made to force the child incry or gasp by slapping the chest with the corner of a torol wetted with cell-water. Exercise are also useful in freeing the tubes of muchs and ferrors the patient to respire deeply. Sulplate of copper is quarter of a grain in a teaspoonful of under) is the best form in which they can be given Emetics, however, must not be used if the child is very feelile.

Stimulating anderocations rubbed into the chest are often of service, and immersion in a strong mastard both (one owner of mustard to each pales of suber) until the skin becomes very red in a stimulant of very powerful efficacy. The internal administration of stimulants should be continued as long as the child in able to available. Unfortunately in bad cases the realist

of all these measures are far from encouraging.

POST-NATAL ATELECTASES.

The form of collapse of the long which occurs in infinite whose longs have been fully expanded at birth is a very common lesion. It occurs almost invariably in the course of a pulmonary materia, and is one of the accidents which retider this form of demagement so fatal in resulty or

rickety children.

Creation.-The immediate cause of collapse of the long is the presence. in the broughful tubes of muons which the child is unable to expel by reason of feeldeness of the respiratory apparatus. Dr. Gairdner, of Glasgor, in his treatise explains very clearly the mechanism by which exhaustion of the lobules is effected. In the act of inspiration a plug of neacus is corried meanly along a tube the calibre of which is constantly diminishing. When the parrowness of the tube prevents further advance, the mucus forms a play which completely obstructs the channel. During expiration the your is slightly dislodged so as to permit of the escape of some of the air contained in the lobule; but at each inspiration it is again drawn backwards so as to close the tube completely against any air extering to replace that which has just excaped. In this meaner after a time the lobules beyond the point of obstruction are completely exhausted and the tissue becomes shrunken and condensed. Even if the plug of mucus be completely imparted in the tube so that it emnot be dislodged during experation, colluss may still occur, for the pent-up air in the absoli is exposed to such pressure by the elasticity and contractility of the alreolar purieties that it is absorbed.

The retention of mucus in the tubes is the consequence of inability to tough it way, and any cause which diminishes the energy of the impiratory set increases the difficulty of drawing in air past the impediment in the broughns. New-horn infants do not know how to cough, for the act of It is in part an effort of volition to toughing is only partly insubuntary. remote an obstacle to the free passage of sir in the tubes. An indant who has not acquired a knowledge of the means by which the impediment may be expelled, suffers the obstruction to remain without employing the necevery force to effect its removal. Even if the child knows how to cough, he may not have the power to carry out the act with sufficient energy to unke it effectual. In the act of coughing a full inspiration is first taken. The glottic is then closed, and pressure is brought to bour upon the lungs by the nuscles of expiration. While this pressure is at its height the glottis is related, and the rush of air passing out curves with it the mucus which was obstructing the tubes. If, however, the lungs cannot be sufficiently filled, or if, owing to weakness of the patient, the force of the expimany muscles is insufficient to bring adequate pressure to bear upon the large, the cough is ineffectual in freeing the tubes of their contents.

Weakness of the inspiratory act is a powerful agent in preventing the entence of a sufficient supply of air. In ordinary respiration the elasticity and contractility of the leng large to be overcome by the sunscles of inspiration. If these muscles are feeble, as they are in a weakly infant, the obstacle to efficient inflation of the lungs is already great. If, however, in addition, the respiratory numerics are opposed by reflex contraction of the broading numeles, owing to the irritation of the estarrhal process, and also by terms in the tuties, they may prove quite unequal to the task. Therefore toy cause which increases the child's general weakness predisposes to pulsionary collapse. Thus counting, distribute, insumitary conditions, in-

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proper feeding, and all the exhausting forms of illness may have this result.

Besides the causes which have been enumerated, the force of the inspiratory act may be weakened by mechanical means. Interference with the action of the displacing may have important consequences in this respect. This influence is especially seen in the case of young infests. For some time after high respondion is principally displacinguistic on account of the circular shape of the chest, which allows of little lateral expansion. Therefore any resistance to the descent of the displacing, such as would be produced by ascitus, or great increase in size of the abdomical organs, or flatalent distention, may so weaken the force of the inspiratory act that a very trifling external determines wide-spread and total collapse of the lane.

Another mechanical means by which the force of the impurators act may be interfered with is deficient rigidity of the chest-wall. Almorral softening of the ribs is a very important agent in the production of collapse, and the frequency and danger of the lesion in reckety subjects is mainly owing to this simple cause. The parieties of the chest in the inhalt are naturally more flexible than they are in the abilt. Even when the ribs and their cartilages are perfectly sound, considerable recession of the lower ribs may be seen at each inspiration if an imposiment could at my part of the impassages to interfere with the ready extrance of sir interfere lung. If the ribe are softened, as in rickets, the same recession is noticed although the pessages may be perfectly free; for the softened niw cannot resist the pressure of the atmosphere, and the force of the impired air is insufficient by itself to prevent the thoracic paneties, where least supported, from sinking in. Consequently in this disease the lower laber of the large are very insufficiently filled with air. If such a child suffer from pulmonary entarria, the additional obstacle to efficient inspiration created by the maces in the takes may lead to complete collapse of the inferior parts of the lungs. On account of the mechanism by which it is practiced, college of the lung must abrays be a secondary lesson. It is found as a complication of various forms of illness. Discuss of which pulmonary estarts is a common symptom, as whooping-cough and mendos; diseases which interfess directly with the passage of air through the glottic reclipitheria, layagus stridulous, post-planyageal and other abscesses in the neighbourhood of the haven; discuses which diminish the force of the inspiratory act, cities by mechanical opposition as in abdominal fumours and nickets, or by its poiring the mercular strength of the putient-in all these cases collapse of the lung is liable to be found.

Mirror Justices.—The extent of the collapsed area is in propertion to the calibre of the tube at the point of distruction. According, therefore, as the festen involves many lobules over a considerable surface, or a limited to a few, the collapse is said to be differed or lobular. The arises part of the long is shranken and therefore depressed. It is purple in colour and to the touch feels soft and dense. It does not expitals. On section the surface is smooth, and blood or bloody serum comics on pressure. Around the collapsed portion the air-cells are employ-matters.

Lobslar collapse is often situated at the anterior colpes of the large but may occupy may other parts. The diffused writely is most common at the posterior surface, but may be seen elsewhere. It penetrates for a suriable distance into the organ, and sometimes an entire lobe or even the greater part of the lung may be found shrunken and nicless. After death, if the lesion he recent, the collapsed tissue can be completely sinfated through the broachus.

Suspicess. - The symptoms are found to vary considerably in different cases according to the extent of the collapse and the degree of strength of the patient. In a very weakly infant rapid and extensive collapse is often a cause of aniden death. In such cases the preliminary enturit is not percentrily severe. Often, indeed, it is trifling; and the rapidity with which death occurs gives rise to much surprise and consternation. The impaction in a large bronchus of a single plug of mucus may be thus folloved in a young and feeble subject by mostly fatal consequences. Another common result of the lemon is a convulsive segure; and sometimes the fits succeed one another with great rapidity, each attack increasing the exhrestion of the patient and aggreeating the pulmously mischief natri feath causes. These cases are not, however, always immediately fatal. In a sensitive child collapse of comparatively limited extent, if it occur mildenly, may give rise to an eclamptic science; but this may not be repealed, and perhaps by judicious and energetic treatment the child's life. may be serred.

Such severe symptoms are, however, exceptional. In most cases the occurrence of collapse is indicated by less striking phenomena. A weakly infast is suffering from the onlinery symptoms of broachial enture. He oughs more or less locarly and his breathing is moderately hurried, but there is nothing to excite apprehension. Suddenly, however, a change occurs. The child becomes restless and embently distressed; his face gets distinctly limit, especially about the cycle and mouth; his breathing, which had been more laboured than natural, increases in rapidity but distributes in depth; the cough ceases or is feeble and faint; and the internal temperature of the body is found to be below the level of health.

The face usually indicates profound depression. The features look pinchel; the eyes are dull and hollow; and the foreboad is often most with a cook classest perspiration. The masses act in respiration, and the breathing is very rapid. The number of perspirations commonly resolves 20 or 80 in the minute, and the personation of the pulse-respiration ratio is extense. In very young infants the breathing is usually very shallow, with little measurement of the obset-wells; but in infants eight or nine months old, whose ribs are softened by rickets, the bases of the chest such in to some extent at each impiratory associated. The child refuses to suck and often seems to have difficulty in smallowing, so that he can hardly be personaled to take milk from a spoon.

The physical signs, if any are to be discovered, consist in slight dultess at the proterior base of one lang, or extending appeards in a narrow vertical strip at each side of the spine. The duliness can often only be discovered by very gentle percussion, as a sharp blow with the finger beings out the resonance from healthy tissue underlying the condensed layer. The breathing conducted from healthy tissue around is of bronchial quality, and may be weak or fairly loud, according to the strength of the respiratory movement. You'd resonance is usually annulled. Sometimes coarse creptation is heard at the confines of the collapsed area. These signs are only to be discovered when the lesion is of the diffused variety. In lobular collapse my delines which may be occasioned by the presence of the solidifed patches is neutralised by the compensatory employment set up in their neighbourhood.

When the above symptoms and signs are noticed, the infant's condition is a very serious one; and unless prompt measures are taken to everte explantion of the collapsed tissue and expel the obstructing mucus, death must inevitably easies. The lividity increases or changes to an using here. the breathing grows more and more shallow, and the child dies in a date

of stupor from slow aspliyats, or expons in a convulsive attack,

In children over a year old, who are not the subjects of rickets, the symptoms are negally less severe, and the physical signs more negly as seruble those which exist under similar circumstances in the solult. If the ribs are softened from rickets, the impediment thus reised to efferent inspiration greatly aggressive the effects of limitation of the respirators on. face, and in children as old as two as three years the signs of suffernment well marked. If however, the chest-wall preserves its normal rigidite the avaightons are much less characteristic. The respiration may be humbed. although this is not always the case, and the complexion any show some signs of deficient accusion of the blood; but the child is not prostrated by the lexion; he can cry burly loudly, and his cough is not suppressed. On examination of the chest, we find duliness of variable extent on one side. usually at the base; the respiration is weak and barsh over the same ever with absence of rocal resonance, and large moist r Jes are board about the back. In some cases, as when the collapsed area immediately surrounds a large broughted tube, the elements may be metallic and ringing to if produced in a courty;

If the lexice occupy the apex, the breathing is often load and browrhind or blowing, and the dulness may be complete. In this situation collapse is very likely to be mistaken for consolidation arising from other

CHIEFFA.

A rickety little boy, aged eighteen mouths, who had out only slaten tooth, was being treated in the linet Landon Children's Hospital for clavels sharrhous arising from ulceration of the bowels. The clost was set formed and there was no softening of the ribs. An elder sister had did in the bospital from talescenter partionitis. About a week after the childs admission he began to cough, and in a few days it was solved that the percusive-note at the right supmospheres fosse and devidedly high-pitched and that the respiration there had a finit broachial quality. There was a little course building about the back on each side. The temperature had been generally about 100° at night, staking to 90° in the meening. The pulse was 96–100°; the respirations 26–30.

Some days afterwards duliness at the right open behind had been complete, and the breathing was branchied with a click in the middle of inspiration. In front the percussion-note was quite healthy. The belot rikes over the back persisted. Temperature in the avenue, 32°-360°; pulse, 80-102; respirations, 20-20. All the time the distribut continued and the clubb wasted rapidly. There was note or less general colors. The urine was allocations and contained recal spithelium. A low days

afterwants the child died quietly,

On examination of the body both large were found to be employed matous with scattered patches of lobular collapse. At the posterior part of the spex of the right large was a patch of collapse which recupied the apper third of the lobe. Ulcers were found in the lower part of the appear flexure and rectum. The kidneys were computed. There was no sign of gray granulations or of enseems notation anywhere about the body.

This case was mistaken for one of acute tuberculous with talerculous ulceration of the bowds. The moderate pyraxis, the orders, the allownaria, and the increasing signs of consolidation of the right apex sensel to justify this view, especially when considered in relation to the lastery of

tubercular peritonitis in the elder sister.

In some cases of lobular collapse where the symptoms are not very

serior, a considerable change all at once is found to occur. The temperature rises, the breathing becomes laboured, and the livelity and signs of distress sucresse. These symptoms indicate the beginning of catarrial prematrix.

Sometimes after an attack of pleurisy the lung is left confensed and airless and adherent to the chest-wall, without my nursed confraction of the aids. This condition may produce very puzzling physical signs.

A little girl, aged fourteen months, with eleven teeth, was and to have been a fire child until the age of ten months. At that time she had begun to orfer from a rough which was called whooping-cough by the medical at-The shald was brought to the hospital for the cough, which had continued for four months, and for general wasting of two menths sensiing. On examination, although there was no obvious contraction of the ngit side of the circut, the respiratory movement of that side was seen to be impaired. The lower intercostal spaces, however, such in fairly well, although less deeply that on the opposite sale. On parentsion, complete diliese with increased resistance was found over the greater part of the right side. It extended over the whole posterior region, and reached upwards in the axilla to the second rile, and in front to the third. Towards the spine behind the note had a wooden quality. Posteriorly and laterally the breath-sounds were coremous with abundant erion, clicking sounds. In front the breathing was becominal. The remanace of the onigh was abnormally strong.

On the left side there was no dulness, but the breathing was blowing towards the apex, and some clicking rhandless was heard all over the left back. The heart's apex was in the fourth interspace slightly to the order side of the left nipple line. The edge of the liver could be felt one inch

helow the ribo

The clast was twice explored with a fine aspirating syrings, but no flaid could be detected. The child eventually died. Her temperature until

shortly before death was normal.

On examination of the body the right long was found to be much shrunken and to be universally attached by old but readily separable adhesions to the chest-will. It was almost entirely non-crepitant, and felt vary longh and firm in texture. Inflation only partially succeeded in dilating the condensed tissue and much force had to be employed. On section the latter of this long was found to be throughout excessively longh and firm. It was thought there was some slight dilatation of the broache. A few undular caseers masses were found scattered over the parenelyms. The left largests generally emphysematous, with the exception of the inferior part of the lower lobe, which was collapsed, but could be reinflated with the blow-pips. This long possed across the middle line of the closed and encroached largely upon the right pleaned metry. On section it was pale and contained little blood. The keineys looked faity. The heart and other organs appeared to be healthy.

This case had been, no doubt, one of pleurier in which the effection had become absorbed, leaving the imag in a state of condensation and collapse, similar to the gray inducation described by Addison. The physical signs were very similar to those of fibroid inducation of the lung; indeed, this was the opinion expressed as to the nature of the case, in spate of the tender

age of the patient.

Playmons.—When the collapse assumes the lobalize form, the diagnosis has to be made without the aid of physical signs. In a well-marked example, sowers; the symptoms are so characteristic that an occurate opinion can

be formed without much hesitation. Our conclusion is based upon the fast that in the course of a pulmously estarch signs are stableady observed indicating feebleness of aspiratory power and deficient stration of the blood. Thus, a weakly or rickety infinit, who has been noticed to cough for a day or two, all at once begins to exhibit signs of restlessness and distress. The cough peaces, his cry is replaced by a feeble whimper or a near distortion of the features without sound; the eyes are hollow; the complexion is laid; the mares act; the breathing is shallow and is hearied out of proportion to

the pulse and the temperature is low.

If pulseonery enterth attack a feeble infant, we must always be prepared for the establishment of collapse, and the swiden occurrence of the susptoms enumerated, sembined with a low temperature and the absence of alphysical signs connected with the chest, leaves us no other explanation of the child's condition. The only other disease which would be accompanied by a similar train of symptoms and an equal percertion of the pales respond to a ratio, without my abnormality of the physical eigns is sents broscho-posimients. In this disease, however, the temperature is high, the breathing very laborious, and the cough load and lucking. In palmonary collapse the temperature is normal, or even below the natural level of localth; the cough in feelle or suppressed, and the breathing in similar, for even if there is recession at the base of the chest from rickets, there is no laboured movement of the shoulders or upper part of the fractic wall.

A difficulty sometimes arises from the slightness of the principarty catarrh. The cough may be unnoticed by careless attendants sail the occurrence of such symptoms without being preceded by my history at cough may excite some surprise. It is necessary, therefore, to remember that at electusis may be the consequence of a very slight enture, and that we are justified from the symptoms alone, and without the process of physical signs, in drawing the conclusion that the child is sufering from

When lobular collapse occurs in the course of an attack of mild benchitis, the presence of the lesion may be inferred by remarking that the symptoms of prestration and deficient oxydation of the blood are suggested out of all proportion to the physical signs. If the broachitis be seem, we may conclude that atcheetons is present if the breathing become addenly shallow and rapid; if the cough and cay become suppressed; while the lividity and general distress are still further aggregated, and the in-

ternal temperature of the body falls below the level of health.

In cases of diffused atelectasis an examination of the class receive dulness, becarding becauting, and a sub-exceptant rhonelus. The disease may then be mistaken for crospens premionin or plenting. In a young infant, however, little hesolation is occasioned, for the straptons induced by atelectasis are very different from those resulting from either of the diseases which have been mentioned. It is principally in cases where the lesson occurs after the end of the first year that my perplectly is experienced. At this age the general symptoms are notally has severe and the child's weakness much less protectanced. Still, the history of the illuse to very different in collapse from that of a case of inflammation either of the lung or the pleura. Moreover, in premionia the high temperature is a distinguishing mark of great value; and tubular breathing, with a few, puffe crepitation noticed at the berders of the dull area, are signs which are not bound in collapse of the lung. From a localised pleurisy the lesson is not always so easily distinguished. Collapse of a note layer of taxet on the surface of the lung gives rise to only moderate duliness quite indices.

the dead, totaless note over even a thin stratum of fluid. If however, an entire palmonary lobe be collapsed, the dulness may be very marked and the resistance notably increased, although perhaps to a less extent than is found to cases of pleurisy; still, the difference is one only of degree. To aid to the re-embluce, the breathing in either case may be west and tonelial without riscarlas or other adventitions sound. If, however, the usual resonance be orgophonic, the sign is characteristic of plearies and is never found owe mently collapsed lung-tissue. In most cases the symptoms alone in the two diseases are sufficiently different to warrant a diagnosis. In atelectasis the distress is greater, and the signs of lividity are more noticeable than in the case of plearity of equal satent; for in the latter disease, suless a great accumulation of fluid occur, or the pain he arrors, the child, as a rule, appears little inconvenienced by his illness.

When the collapse occupies the spex of the long, as in the case narrated above, it is often distinguished with difficulty from an ordinary custous capsolidation, respectfully if any complication be present, as in that case, to rase the temperature of the body above the natural level. Still, one distingashing mark which was present in the case referred to might suggest simple confocustion of tissue, viz., the limitation of the dulness to one assect of the chest. Complete dulness arising from consolidation would be certainly accompanied by a corresponding alteration of the percussionnote on and above the clavicle as well as at the supra-spinous force.

Proposus.—Post-natal utelectasis is always a grave lesion, especially in weakly children. Indeed, if the collapse occur in the course of a severe attack of broughitis, and the patient be a feeble or nickety infant under the age of twelve months, death may be looked upon as inerstable. Even when the preliminary outarrie is less severe, the life of the child is placed in great danger; and if the collapse be extensive, or the softening of the niscentreus, treatment must be very prompt and except is indeed to afford my prospect of success. The occurrence of convolutions greatly increases the anger of the men; and marked apathy and torpor, persistent increase of lividity, great staffowness of breathing, and inability to swallow are all symptoms of undersumble import. On the contrary, if the face become clearer and the breathing deeper, and especially if the child begin to week his fingers, to take his bottle readily, or to show any interest in what passes. around him, we may have hopes of his recovery.

Declarat .- Residiation of the collapsed air-cells in cases of abelectain can only be effected by measures which increase the vigour of the inmentory movement. To attain this object we must make not of exception simulation both internally and externally. The child should be placed as quickly no possible in a hot mustard-bath of the strength of one ounce of mustard to each gullon of hot water. In this bath he should be alloved to remain until the sense of the person supporting him begin to peick and tingle unconstortably. After being removed and dried, the that should be unapped loosely in cotton wook and the child be hill quetly in his cot with head and shoulders raised. The temperature of the room should be between 70' and 75'. If may signs are observed of scenaniation of palegra in the tubes, an emetic is useful; and a quarter es half a grain of surpliate of copper (according to the age of the chibi) tany be given in a tenspoonful of water every ten minutes until vomiting is produced. The cuestic is also valuable in forcing the chibi to take a deep breath. Mechanical means of increasing the depth of the inspirations term an important part of the treatment. The infant should not be alloved to sleep too long at one time. Drownings is one of the commonest

symptoms of this lesion; but a careful eye should be kept upon the patient during his sleep, and if signs of increasing lividity are noticed be must be taken up and put into a mustard-bath, or made to cry by frictions to the soles of his fact or by the application of a strong stimulating licment to the client wall. The linimenters amments of the Benish Planmacoports, diluted, if necessary, with an equal quantity of olive-oil in term

useful for this purpose.

If the child can such, he should take white wine whey with cream from a bettle. In many cases, however, on necount of his installity to draw up the finid through the tube, it is necessary to feed him with the syringe. In addition, or as a suriety, the child may be fed with milk and burkey water with Mellin's feed, and five or ten drops of pale brandy must be given at regular intervals. In the case of a weakly infant, when the symptoms of prostration are great, the stimulant will be required every had hear much the child reviews. Older children may take milk, strong borden, and the brandy-and-egg minture.

The above measures must be put in force directly my signs are discovered indicating the occurrence of collapse. The earlier special treatment is begun, the more likely is it to be successful. It is of the utwost importance that the child be not allowed to sleep himself to death, as he will probably do it left alone. He must be reased at intervals and male to inspire; and our efforts must be continued personningly until signs are noted of returning vigour or of improved accustion of the blood. Even then be must be carefully watched that he may not relapse, and shows

lation must be continued until all danger has passed.

Drugs are not of much value in this lesion. Opium is to be earefully avoided. Difficultie stimulants may, however, be given if thought adviable. The best of these is quinine dissolved in an volatile in the propotion of one grain to the drackin. Three or four drops of this mistion may be given occasionally in a specuful of the food.

CHAPTER VIII.

PHRHOD INDURATION OF THE LUNG.

Finance induration of the lung (cirrhosis of the lung, interstitial pneumonia) is not very succession in children, and is often mistaken for platinis. The complaint gives rise to a chronic demagnment of health which is subject to marked variations according to the senson of the year. In cold and changeable weather the patient suffers greatly from attacks of bronchitis and catarrial pneumonia. Consequently, at these times he is apt to be feverish and grow pale and thin, even if his life be not put in actual perd. In warmer and more settled weather he usually greatly superove and gains considerably both in flesh and strength. Cases of very chronic "consumption," in which the patient is constantly ill and fading during the winter, but reviews and regains flesh during the summer mouths, are often examples of this form of pulmourary disease. Cirrhosis of the lung rarely attacks infants. It is usually found in children of five years old and upwards.

Pathology.—Fibroid induration is always a secondary complaint, and usually owns its origin to an attack of inflammation of the long. Both crospens and enterted passumonia tend to promote a multiplication of the connective tisons elements; but in children the fibroid increase is commonly due to the lobular form, especially to the subscrete variety which is apt to follow attacks of members and whooping cough. Catarrhal passumonia is always accompanied by dilatation of the broachi, and this condition of the air-tubes taxwars the naturally process. It hinders the escape of secretion and so maintains a state of continual irritation of the air tubes and their terminal alwooli. As a result, the persistence of the palmonary inflammation tends to promote a fibroid thickening of the walls of the broachi and air-cyclis; the dilatation of the tubes becomes a permanent lesion, and this, again, helps in its turn to perpetuate the irritation.

Crospous preumonia is less often than the preceding a cause of etrihotia; but concluses, if the disease is protracted, thickening and industtion may occur in the walls of the alreedi, and the industring process may scotings after the original disease is at m end. Weller has reported the races of three children in whom the disease had the origin for he had

limed treated the patients for the primary attack of pacutionia.

Sometimes, nithough rarely in young subjects, inflammation of the plears my leaf to the fibroid overgrowth. It is in cases where the long has been subjected to long-continued compression that this consequence is most likely to occur. The thickening in this form is limited at first to the superficial interlebular septa; but the process may afterwards penetrate more deeply and be accompanied by dilatation of the Levuchi

Induration of the two busys as a consequence of the inhabition of grit in the course of industrial labour is not found in children. Young persons under twelve years of age are not exposed to this source of disease; and

even in adults whose employment obliges there to breathe continually an nor filled with invitating particles, disease of the lung thus indeed is invariably chronic, and only becomes developed after an exposure arient-

ing over muny years.

Morkey Anatomy.—On examination of a lung, the seat of filteril industion, a great development is noticed of filtro-uncleated fisone in the walk of the alveoli, the interlobular connective tissue, and the kennehial tokes. As this increases it involves all the connective tissue of the lang. The urgan becomes excessively dense and skrunken. Its substance is firm and tough, and a section shows a smooth or faintly granular surface, wen-gray or gravish-red in colour, intersected in all directions by white through hands. Datted over it are white rings of various sizes, which are the divided walls of thickened and diluted tubes.

The fibroid austerial is not special evenly over the perandigms, but often surmanula talets of more healthy tissue, which are thus separated from one another by the dense fibrons bunds. Sometimes in the neighbourhood of the fibroid parts the uninvaded tissue may be emphysemateus. Small cavities combining closesy matter or thick purelest fluid are seen here and there in the dense tissue. Some of these are dilutations of the broachi; others are the result of alteration which has spread from the subarged tubes. Sometimes, as in the case of a child due years old the was under my care in the East London Children's Hospital, large expended channels are found validing from the root of the long and enoing altrapity, like the fingers of a glove, at the surface of the organ isomediately underseath the picum.

When the discuss follows upon an attack of erospous parametria the change principally involves the alreed. The walls of the on cells become greatly thickened, and in some cases, at least, as in an instance reported by Dr. Solney Coupland, the exudation products filling the alreed become organised into a fibrillated and at first vascularised needs work. By the means the alreed are either compressed or filled up and in either case offisced; and as the tissue shrinks, the new vessels which had been detel-

oped in the growing tissue become obliterated,

If the cirrhosis originate in a broache-presumonia the absolute walls are thickened as in the former case; but in addition there is great development of fibroid tissue in the walls of the broachi and in the connectivationse between the lobules. In these cases whitish bunds are seen relia-

ting from the thickened walls of the nir-tubes.

When the morbid process starts from the plears, dense filence bunis pass inteards from the surface. The plears itself is greatly thickened, and the long-tissue underlying it may be converted after a time into a dense fibrous substance. At first, however, the fibroid degree oution is more partial than in cases where the disease is the consequence of preumonia.

Microscopic examination discovers closely packed wary libres in the denser portions, or even a homogeneous or faintly fibrillated scatterial with

n few small round or fusiform cells.

The also ii, where not completely compressed and efficiel, are either coupty or are filled with aucleated and epithelial cells, granular corporates,

and granules.

The breach are either obliterated or are greatly thickened and dilated, especially in parts where the disease is most advanced. The tobes are in some cases regularly enlarged, but sometimes more local dilatations are seen forming civilies of various sizes. The lining most semilease may be alcumbed, and in very advanced cases alcomative destruction of tasses.

may have penetrated from these spots into the lung. This form of the thense has been called "fibroid pathials" by Sir Andrew Clark.

Fibraid indunation is usually limited to one long, the other being Lealthy or emphysematons. It may occupy any part of the organ but asset

commonly affects the base than the apex.

In addition to the mischief in the lung, discuss in observant in other parts. The liver, upleen, and sometimes the kidneys may be the sent of ampleid degeneration. In some cases the liver has been found to be cir-

rhotic and the kidneys to be granular.

Symptows.—In the early stage of the disease the development of filmoid tissue in the lung is accompanied by no sperial symptoms. The process most commonly begins at the end of an attack of catarrind pneumonia. In some children we find a peculiar tendency to recurring attacks of this form of parametris of very unusual duration. Between the attacks the child scens almost well, and an examination of the back detects merely a slight impairment of resonance on one side (best detected by "lessel percusmon "upon three fingers at once), with perceptible increase in the resistance. The respiratory sounds, however, are normal. When an attack of calcurbal presuments comes on, the symptoms and signs are those poculiar to that form of influmnation of the lung. If death occur after a prolonged attack of bronche-porumonia, we may find one of the lungs small stammers. and particularly firm to the touch; and notice on section that the interlabular septa and walk of the bronchioles are usuch thickened, especially at the base of the organ, and that the broachi are dilated. Such a condition constitutes an early stage of the filmoid change in the lung. The in agreent fibrosis, beyond conferring a certain high pitched quality upon the percussion note—and this sign is but an indefinite one—gives rise to no symptoms. Natritism is not interfered with, the appetite is good, and the braperature is normal. Pyrexia, cough, loss of appetite, and impairment of nutrition only occur as a result of an intercurrent influentatory attack; and at these times only are any pronounced physical signs to be detected on examination of the chest. Dulpess is then marked and extensive; the breathing becomes blowing or tubular; and coarse bubbling or sub-crepttest rhondons—more or less metallic and ringing according to the degree of sents dilatation of the tubes in to be heard with the stethoscope. After each of these attacks the long is left in a distinctly worse condition. than before. The fibroid overgrowth increases in the lung; the bronels get to be permanently diluted; and the lining membrane of the air-tubes becomes the next of more or less persistent entarrh.

Even when the fibroid overgrowth has increased to such a degree as seriously to impair the neefulness of the Imp as a respiratory organ, the sufficient of the disease upon general nutrition may be comparatively slight so long as the chest is free from interconvent attacks of bronchitis or estartial presuments. Special symptotes arising from contraction of the lung and consequent obstruction to the pulmonary and systemic circulation are to be noticed; but if no according disease of organs has been induced by his illueus, the child is often fairly stoutered strong. Therefore, in some and settled weather, which brings with it freedom from enture, his health may afford little subject for complaint; but in changeable seasons, and expectably during the winter months, he wastes rapidly and exhibits all the

symptoms of "consumption."

When the discuss occurs as a sequel to an attack of plearity, the carly symptoms vary according as to whether the plearitic efficient and consquent compression of the integ have been moderate or excessive. In the first case, unless a local catural be present the general symptoms may be insignificant; and a physical examination may only detect dubase at the extreme base behind, with very weak brouchial breathing and some coance butbles with respiration. The child any be subject to paroxymal cough, but peed not for a long time recessorily suffer in his nutrition through the condition of his lung. If, however, effection have been copious and the burg be bound down by thack bunds of lymph, the symptoms and physical signs are those of pleuriny with returnition, combined with puroxymal cough, profine expectors on of effective nanco-partition sputs, and the other phenomena which attend a case of pronounced circlesses of the lang-

In the fully established disease we find the following signs:

On account of the diminution in size of the affected burg, the chest-wall corresponding to the shrunken organ is a tracted. The ribs are thittened over the seat of disease, and the respiratory measurement is impaired or agapersoni. If the lung is much reduced in size, the shoulder, the name and the inferior angle of the scapula are lowered, the rike are approximuted, and the circumference of the chest on that side is diminished to the measuring tape. An outline of the chest drawn from the continueter shows this difference between the two eides very clearly. In addition a certain displacement of soft parts in the neighbourhood is to be noted The mediastinum is drawn towards the effected side, and the opposite long is found on percussion to project across the moddle line of the chest. The heart is also displaced, unless militations between the pericardium and aljoining plours retain it in its normal position. If the upper part of the left long be the seat of disease, the heart is drawn upwards. If the right long be affected, the heart is palled towards the right side, and in extreme cases may be felt beating to the right of the sterman. Vocal sibration is sometimes plainly perceptible over the indurated cogus, although it is alssent from the sound sole. In other cases no fremiles may be perceived over the affected half of the chost when the child speaks, although it can be felt over the healthy lung. The percussion-note is of wooden or infinite quality, and there is usually marked resistance of the chest-wall. This increase of resistance is especially noticeable when the diseased long is the sent of an intercurrent attack of broncho-pneumonia; and the percussion note at this time may be as completely dull and tondess as in case of plearitic effusion. The breath-wand is found to vary according to the amount of secretion retained in the tubes at the time of examination. If the dilated tubes are fall of muco-pus, the breath-sound is weak and breachial, with little rhoneloss; and resonance of the voice when the child speaks is faint or suppressed. If the air passages are communitively empty, the respiration is fould and bloming often intensely cavernous, or even amphoric, with metallic echo; and large, crisp, metallic bubbles, with dry, creaking sounds, are beard with both importation and expiration. These signs are in most cases limited to one dail of the chest.

The symptoms noted in a case of pronounced circles are in part due to the condition of the long itself; lest in part they are the consequence

of the obstructed pulsionary circulation.

The cough is a very characteristic symptom. Owing to retention of secretion in the dilated tubes, and to loss of clusticity in their inflation units, cough is severe and spassarolle. It occurs at comparatively rare introvals, and consists in a rapid succession of loose-sounding backs which often continue for many minutes. The child's face becomes compared and his cyclicle suffused, and his whole body often stakes with the relicate of the purcayers. After lasting a variable time the cough cade in

specine he contractions of the disphragm, and encomens quantities of effensive purelest matter are referred or expectanced. The implement small of the morbid secretion is due partly to its retention and consequent purefaction in the dilated tubes, and partly to the presence in it of garpersons shreds of microis membrans. The same causes communicate a fetor to the child's breath, which can be perceived at a considerable distance from his cot. Sometimes the expectorated matters are timped with blood; but homophysis from this cause is not conson in the child Epistaxis may, however, occur, and the blood from the ness may be avallished and retabled up again at the end of a cough, so as to appear as if brought up from the lungs.

The respirations are usually from 30 to 35 in the minute. If hondehopermentia be superabled, the breathing becomes much more turned, and

the pulse-respiration ratio is presented.

The appetite is often good, and although the child is pale as a rule, his unfrition, as has been said, unless interfered with by an intercurrent infanusatory attack, may be fairly satisfactory. During the attacks of caturbal produced, may be fairly satisfactory. During the attacks of caturbal produced, however, he was en rapidly; and if the disease has produced marked contraction of the side, the child is usually greatly experisted.

Pyretia is not a symptom of the uncomplicated disease. When perent, it usually indicates the occurrence of bronchitis or pastmonia, and is then 102° or 103°, or even higher. A more moderate pyrenia may be the consequence of alceration of the bronchial taken. In these cases a microscopical examination of the sputnus will discover the presence of fibers of elastic tissue.

In addition to the above symptoms others are present which are the consequence of interference with the pulmonary carculation. The right also of the heart becomes hypertrophics, and the systemic venous system is foller than natural, so that the veins of the neck and chest, and often of the limits, are abnormally prominent. The forgers are clubbed, and is alterned cases there may be a congested, turgid appearance of the face.

Amyloid disease of the liver, spleen, and hidneys is commonly present in advanced cases. If this be analysis, there may be great assemia and

general dropey.

Although in most cases fibroid industrion of the lung is accompanied. by marked contraction of the side, this symptom is not always present. In one of the most pergrounced examples of the disease which has come under my notice -- a child of five years old -- the elect was well-shaped, and the affected half, although slightly flattered posteriorly and at the junction of the lateral and anterior thirds, was little inferior to the healthy side in actual measurement. In this case dissection of the body showed that the shrinking and condensation of the lung tissue was compensated for by enormous dilutation of the air-tubes, so that the space occupied by the organ in the chest eavity was little diminished. Even if the lung to condensed so as to reduce its volume much below the standard of health. marked contraction of the chest may be prevented by the drawing into the affected side of morable organs in the neighbourhood. Thus, in a boy -aged eleven years-in whom the shranken right lung was reshood to a here mass of gristle, the enlarged anyloid liver was drawn upwards to that its upper border was at the level of the third rib. This displacement prevented the chest from falling in, and the contraction of the side was imited to a little flattening under the shriels.

In cases where electrative destruction of lung ensues (fibered phthics)

there is great interference with nutrition. The temperature is clerated, there is often heetic, and districts may occur with alteration of the bowels. The symptoms are those common to the third stage of consumption, and the physical signs are such as have been described as accompanying confirmed pulmonary circlesis. In these cases the destructive process is seen followed by signs of deposit at the apex of the opposite lung.

Fibroid induration does not always go on to fibroid phthain. In children, at least, this is an exceptional mode of ending of the doese. As a rule the child succumbs to one of the intercurrent attacks of broads.

pneumonia, or falls a victim to a secondary acute fuberculosis.

Dispersion.—In the early stage of through induration of the lung a septim diagnosis is impossible. We may suspect that the process is preceding if a child be subject to repeated attacks of inflammation of the lung, and if after an unusually prolonged attack of estarrhal presuments the permeasures remains high pitched, and the indications of dilatation of the broadare slow to subside; but no positive spinion can be harmful upon such insufficient data.

The diagnosis of the confirmed disease rests upon the signs of shrishing and condensation of lung tissue combined with stidence of dilutation of the bronchi. There is great retraction of the effected side, indicated by falling in of the chest-wall, lowering of the shoulder, nipple, and inferior right of the ampula, with curving of the spine—the concavity being towards the affected side. Neighbouring organs are displaced. If the right lung be discussed, the liver is drawn upwards, the heart is felt besting to the right of its normal position, and the resonance of the left lung passes across the middle line of the chest. If the left lung be confincted, the heart is drawn upwards and the right lung convocates upon the left pleural envity.

On wanternation of the chest the percussion-note is wooden or tabular, with marked resistance, the breath-cound is weak or been had if the toles contain much secretion, while after cough and expectention load blowing or exversors breathing is beard, with large metallic bubbling riveries, and interse breachophonic resonance of the voice. We find also indications of interference with the pulmonary circulation. The right ventrals is hypertroplied; the veins of the neck, chest, and must are fuller that

ratural, and the fugers are clubbed.

The violent perceyonal cough ending in retching, and the discharge of a large quantity of offensive puralent narrow is very characteristic; selthis symptom, combined with the sudden change in the physical signs which is noticed at once when the dilated tubes have been relieved of their

contents, is a strong argument in favour of fileral industrion.

Firmey, with retraction of the side, presents physical signs very similar to the above. But in this case, although the breathing in the child is not sufrequently bollow, it is movely covernous, and is not accompanied by metallic garging. Moreover, the cough is not paraxysmal, and expectantion is somety or abount. Cardiosis of the long may, however, follow upon long standing picturisy. It is detected by the gradual supervention of signs of boundard dilatation with copious parallel apula.

If on account of extreme dilatation of the benefit no retraction of the side is present, the characteristic cough, the profuse eputa, the saldin change in the physical signs after expectoration, and the history of repeated failure of health, with rigid improvement under faccurable conducts of

living, are symptoms of the utmost value,

Ordinary pulmonary phthisis is usually combined with a certain degree

of throid overgrowth. The distinction between dilated benefit and excitive due to incomitive destruction of lung is elsewhere considered (see page 514). In any case the strict limitation of the disease to one side of the chest is a strong argument in favour of the fibroid disease. For pulmorary phthis is in the third stage is never confined to one lung. It must be remembered that cavities resulting from ulcoration of lung may be combined with dilated brough (Shraid phthisis). In such a case the apex of the appears lung is probably also the seat of disease. The diagnosis will then cost up as the history of the illness and the oridence of marked contraction.

Proposit.—Although fibroid information of the long usually tends to increase, the immediate prospects of the child are not unfavourable as long as the disease is limited in extent and remains uncomplicated. The danger of these cases arises from the secondary disturbances, which are a common and unfortunate consequence of this condition of the long. A catarrh cases great increase of breastful secretion, and often leads to retention and decomposition of puralent matter in the dilated tubes. The irritation thus induced may be sufficient by itself to set up a catarrhal procumous. Furturately in these attacks the type of the intercurrent disease is usually subscute; but its course is upt to be protracted, and if the fibroid consolidation is advanced, or the notrition of the child impaired, the putient may arcumb to the complication.

The continuouse of healthy mutrition is very necessary to the favourable progress of these cases, and any derangement which tends to reduce the strength, such as digestive disturbance, vomiting, or distribute, is distinctly injurious. The progress is more favourable when the disease is eated at the upper part of the lung than when it occupies the base. In the first case, on account of the dawnward direction of the air tables, retention of secretion is less liable to occur; in the second case the force

of gravity helps to favour accuratdation in the tubes.

In the inter singe of the illness, when amyleid discuss of organs has occurred, the prognosis is serious; but even at this period, if the patient be living in a climate which allows him to pass much of his time in the open air without risk of shill, nutrition may be carried on fairly well. (Edoma with or without anyleid change is an authorounable sign, as it indicates a

a very unsatisfactory state of the blood.

Evertwest.—In the treatment of this chronic disease we can do nothing to remedy the mischief in the lung so far as it is already completed. Wherever the fibroid charge has advanced, the tissue affected is injured beyond hope of repair, and no treatment can cause alsorption of the morhid material in the lung. Still, we can do much by careful attention to the corditions of life of the child to prevent further spread of the disease. Our efforts must be directed to the removal of irritation in the lung, so as to arrest the tendency to active change, and to the promotion of healthy The chief curse of the extension of the industring process is the presence of bronchial secretion in the takes. We must therefore do all in our power to avert the risk of chill; and if a catarrh attack the lung, it must be treated without delay. The child must be dressed from head to foot in flurnel or wooden underelothing, and should never leave the bound in cold or sharp weather without suitable covering to his neck and cliest. This precaution is the more necessary as confinement to hot rooms is to be skinnerated; and if the child be properly protected from cold, regular everthe should be insisted upon. If practicable, it is desirable that the child would prove the winter in a dry and braving, but equalds climate, where he is not liable to suffer from constant changes of temperature. His diet should be nutritions, consisting of mest, error, malk, etc., availing mess, of furinecous food; and if he be weakly, half a glass of port wine, or of the St. Raphael taunin wine, diluted with an equal quantity of water, may be given him with his dinner. Iron and cod-liver od are always indicated in these cases.

Directly signs of enterth are noticed the child must be confued to his hed, and he subjected to the treatment recommended for such cases (see

Bronchitist

In the more advanced stage of the disease much may be dene by saisable medication to relieve the more distressing symptoms. One of our first objects should be to control the amount of secretion and distractive feour. Astringent remedies given by the uputh and inhaled into the large are very useful for this purpose. The child should take quining for 1-111. with first ferri perchloridi (# x.-sx.) and a few drope of he morning several times in the slow; and astringent and nativeptic solutions should be apprayed into the throat at enimble intervals. Three solutions must not be too strong or they may earlie so much cough that their use will have to he discontinued. Alors (gr. x. to the or of water) and tumin (helf a grain to the or.) are both very useful; or we may use earbelic and or crossis-() ax, to the pint of hot water) combined with a drashin of tinet beamin co, as an inhalation. Temperatine given internally is often a reliable remedy in diminishing the assessed of secretion. It may be administered in doses of ten or twenty drops every three or four hours. Redseing the quantity of fluid allowed for drink will often considerably diminish the secretion; but children do not readily submit to this deprivation.

Verniting is useful, as the net helps to effect the discharge of sceretion from the tubes; but the parecyons of cough are upt to be excited by taking food, and if the contents of the stomach are ejected shortly after a meal the loss of nourishment may cause serious interference with natural In these cases it is advenible to give small doses of arsenic (% j.-ij.) two or three times a day, or a drop or two of liq. strychnis, for both of these remedies tend to control the retching efforts at the end of a fit of coughing. But the womiting should be excited at a wave convenient time, usin the early morning, by a draught of norm water, mustard and suits, or a

grain of substate of couper.

Cold-from oil and toules are of great service at all stages of the disease; and if amyloid degeneration of organs has occurred, and there be as easi, iron is especially indicated. Dropsy must be treated on a similar plan. Any complications which arise in the course of the disease must receive immediate attention; for it is indispensable to maintain the lending making of the animal functions. Therefore indigestion, distributes, etc., must be treated by diet and suitable remedies, as directed in the chapters

treating of these subjects.

CHAPTER IX.

RECOCULTIS.

Intraceurous of the noncous membrane lining the nir-tubes is a comnon cause of death in infancy and childhood. The discuss may be dangerous not only in itself but through its tendency to be accompanied by collapse of the long or to pass into bronche-pneumonia. In young infants death, when it occurs in beauthitis, is solden due to the uncomplicated discuss. It is usually to be ascribed to one of the consequences which have been referred to. In older children a simple bronchitis may prove had, but up to the age of five or six years the untoward result is commonly due to extension of the inflammation to the fixest tubes and terminal alussit.

Bronchitis may be a mild complaint or an affection of the utmost gravity. When the discuse attacks only the large tubes, it is usually of little consequence and can be readily extend by judicious treatment, although even in these cases, if the patient be a weakly infant, futal collapse may occur very suddenly and unexpectedly. When the discuss spreads to the smaller tubes (expillary bronchitis) the illness is a very

serious one, and many of these cases prove fatal.

Countries.—Broughitis may arise from exposure to weather and to changes of temperature like other forms of entertial demagnment. It may also be set up by arritants inhabel into the air-passages. Thus an escape of gas in the numery is sometimes a same of broughing catarria. During the pyrexia attendant upon dentition children are especially sensitive to the causes of palmonary disorder, and very slight chills will gave rise to broughtist in such subjects. Some children are said always to "cut their tenth with a cough." In other words, their exceptional sensibility at this time to atmospheric influences makes them eatch cold very readily.

Damp and cold combined, especially where great variations of temperature occur, are fruitful causes of caturdial disorders; and if in a climate where such conditions prevail the child is insufficiently clothed, he usually becomes a frequent sufferer from broad-ind derangements. Some mothers have a curious district to flumed worn next to the skin, and accustom their children in all seasons to depend solely upon the warmin of their fracks and emppees for protection against the cold. The common result of such a peartice is to increase the natural ansceptibility to chill; and many a child's life has been secrificed to this senseless perpolace.

Besides the primary form of bronchitis which is induced by the above causes, the disease is frugesoffy not with as a secondary affection. There are many forms of illness which are betermily complicated by pulmonary extern. Whooping cough, measles, typhoid fover, and acute pulmonary inherentless are amongst the number. In others an intercurrent bronchitis is a frequent phenomenon. Thus in scarlatina, small-pox, diphtheria, nothin special long diseases, as croupouts pasumona and pleurisy, and

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in discusses of the heart and hidneys, broughtte is a frequent complica-

Morbif Justicesy.—The austonical charges induced by the discuss involve primarily the nuccus numbrane, and may spread thence to deper structures. The membrane is congested and consequently reddened and thickened. Sometimes it is softened. The secretion is at first diminished, but afterwards becomes copious and watery; then thicker and may the pus. Under the microscope we find optibilial cells (many of their enteryonic), granular cells, and pus corpuscies.

When the bronchitis is expillery, the first takes are often found completely occluded by this viscid muco-pus. This is especially the case in the lower lobes, into which the sucretion has produbly penetrated by inhabiting and gravitation. More or less collapse is then usually found in the tion-

with which the abstracted takes are in connection.

The inflatomatory process is at first limited to the nurseus membrus, but if the disease continues, may presente to the subnurseus tissue or even involve the whole thickness of the bronchial wall. In these cases distation of the channel may take place, and acute enlargement (emphracial of the nir-cells may be found. Office the two opposite conditions of leb-

ular collipse and lisholar emphytesia may be found side by side.

Ulcerative executions, described by Dr. Geirdner as "benedial absences," sometimes occur. These are found in the centre of collapsed obsides, and consist of little collections of pas the size of a brap-seed or larger. They communicate with the terminal tubes, and may be formed of dilatations of these tubes or of ulcerative destruction of the walk of ni-joining nir-cells. In the former case they are lined by a five villent memberate, in the latter they are minute excites in the lung substance, and their puralent contents lie in immediate contact with the lung term. According to Dr. Geirdner, these possilent collections are the direct result of pura accumulated primarily in the extreme breachial tubes of the collapsed lobules. The general appearance of these abscesses is that of softening toburcles, for which, indeed, they have been often mistaken.

In the amjority of cases broachitis is limited to the larger takes, but even then the parallest ascretion may be descen inwards into the fire brachi; and these are often found filled with visrid, yellow matter, even when their liming membrane is not inflamed. In young infants, who carnot cough at will, this retention is very liable to occur, and, as is observer explained, as one of the causes, which render collapse of the lung so contact a fesion in the beginning of life.

Besides the anatomical characters which have been described aponot catarrhal passuments are very common. The appearances resulting tom this form of discuse and the mode of its production are described dustant

(see esturbis) possmous).

In chemic broughts the moreous measures often appears to be little affected, although sometimes it is smooth and polished. The under tries are considerably dilated; their transverse filess are hypertropicel; and the sub-moreous connective tissue is prantilly thickened. Considerable emphysican is usually not with, and collapse is an almost invariable feature of this form of the disease.

Symptonia.—When the inflammation is confined to the larger breach, the symptonia are not severe unless the patient he a very young or wakly subject. In a new-born child or a feeble, wasted infant a slight degree of bronchial cutarrh may be accompanied by very serious symptonia, and even lead to death from the occurrence of pulmonary collapse. This form of

the disease is described elsewhere (see Collapse of the Lung).

In stronger infants and older children the occurrence of cutarrh of the larger brought is indicated by coryze and cough. The child success and cough at intervals. He complains of no pain and if the cough is hard at the first it soon becomes loose, and couses after a few days. In these mild cases the general symptoms are slight or wanting. There is no fewer; the child is loosly and cheerful and his appetite is hittle impaired. The tongue is usually furred, and there is some continuous; but an aperient possion remedies this inconvenience, and the child is quickly well. In such cases the only physical sign to be detected about the chest is the presence of a little someon-subtlant rhonolous or an occasional large bubble in the inter-scapular region.

Although these cases are mild in themselves and easily cured, they may
yet, by neglect, be no prolonged as to cause considerable interference with
natrities. If care he not taken to protect the patient from the urdinary
cames of civill, he may prove through a succession of little colds, so that has
cough continues for several weeks, and may be accompanied by a certain
amount of caturch of the stomach. Consequently, the civil looks pole and
gets flabby and languid. In such a state his condition may not only be
considered an anxious one by his parents, who begin to entertain fears of
consumption, but the resisting power of the civil against changes of temperature being really lowered, he is very upt to alarm the practitioner by
suddenly developing all the symptoms of acute broncho-presumonia.

If the extern assume a sovere form, it often begins with fever and sowness behind the stemus. The temperature rises to 100° or 101°; the terges is thickly forced; the pulse and respiration are both hurried, although their relation to one another is little altered; and the bowels are confined. The sures act with respiration. The cough is at first hard and frequent and increases the pain in the closet. The skin is meast, the tare flashed, and the child, if an infant, constantly requires to be in his narse arms. He is very thirsty, and on this account takes his bottle with engrances. A certain amount of gastra-intestinal cuturds often related. Unlaby after a day or two the temperature subsides, the cough becomes losser, and the soreness of the closet abutes. Under proper treatment, the child is usually well at the end of the week.

The physical signs in these cases are of trifling amount. They consist merely in more or less large bubbling at each base, with dry rhorchus and

ossusional bubbling rides at various parts of the lungs,

When the inflammation penetrates into the smaller tabes (capillary brenchitis) the symptoms become abruing. The features look pinched, and the expression is one of extreme districts. The face is pale, with much limitly about the cyclids and mouth. The child is restless. His dysptom is great, and his respiratory movements are laboured as well as learned; but if the discusse is uncomplicated with collapse or lobalar parameter, there is little disturbance of the neural proportion between the pulse and conjuntion. Often the child is subject to sufficiently spream it had shown, and has to be supported partially upright in his nurse's arms, or mixed in his cot by pillows. At each inspiration considerable recession is noticed of the soft pure of the closet; and if the ribs are yielding from richets, the retraction of the bissest; and if the ribs are yielding from richets, the retraction of the bissest; the close may be extreme. The temperature at first is raised to 101' or 102', but when accusion of the bissed is greatly interfered with the mercury usually stake to 30'.

The pulse rises to 140 se 150, or even higher, and is small and often hard. The cough is backing and hourse, and occurs in stiffing parcaying greatly increasing the difficulty of breathing and intensifying the latticy of the face. The skin is moist and books of sweature offen seen studing upon the hours. The tongue is moist and thickly furred. Appoint is completely lost and the child is very thirsty. Still, on account of the dysprom an infant is quite unable to draw finit from a bottle. The mouth is required as an air-passage, and the needs of respiration proclude its being used for any other purpose. Venifting sometimes follows a par-oxyen of cough, and much whitish or yellowish phlegm is thrown up with the contents of the storage. In this state the child parely speaks cremis. Crying interferes with respiration, and he has no breath to spare.

On examination of the class percession discovers no duliness. With the stethescope the breath sounds are found to be more or less completely covered by a copious sub-crepitant rhondens which is heard over both large. In an uncomplicated case the breathing is nowhere broughind or blowing, and the resonance of the voice is unableved. These cases are, however, so often complicated with atelectasis or brought-prountonia that the physical signs connected with these forms of discusse are often to be detected at the

posterier luses.

Unless an amelicention in the symptoms occurs enddenly, the district becomes more and more marked. The fits of dysprem are more frequent and sharing. The child, as long as his strength will allow, tower in his bed, throwing his arms about restlessly. In an infant or rickety child the symptoms pass on to those which have been described as characteristic of attelectaris or of catangled paramonis. In other children, in whose these complications are less likely to occur, the face assumes a lenten hue; the fingers and mails grow purple; the breathing is more burnied, and the giving gets excessively rapid and small. As the weakness and explicit become more marked the cough ceases; the restlessness diminishes; the child becomes drowny and interactly apathetic, and soon dies constone or consulted. The temperature often sinks to a neutral level when the symptoms of asphyxia become more pronounced, but often rises again before death to 102° or 103°.

If the case terminate favourably, the eyes grow brighter and the brility begins to clear; the cough is looser and less parcoysmal; the pulse sharkens; the breathing is less laboured; and the child takes more notes.

serting to be less absorbed in his own upensy soundings.

The chrusic form of bronelitis is not mre at the age of five or sit years and upwards. It meally scenars in children of screfolous traderies who have been subject to repeated attachs of beorekial estarris, and suffer in consequence from some permanent emphysican of the lungs. Such children are very sensitive to childs and are age to be tradibed in the chargeable sensors of the year with a distressing cough and shariness of breath. Membes and pertussis in strunous subjects are often followed by the same palmonary susceptibility, so that during the colder assults the patients where null cough, and present all the symptoms of directic lenschits such as result from the same conditions in chicaly persons.

In the milder form of the discuse the child morely suffers from a chronic cough, which undergoes very noticeable exacerbations on any change of the weather, and so the occurrence of a child is complicated be a time by the symptoms of an acute attack of palmounty entants. These

cases often give much trouble and are very difficult of cure.

In a severar form, when the employment is narked the chest becomes

tarrel-shaped; the skin is habitually dry and the fingers are slightly shabed. These shiblers are almost inemably short and thick-set, with carse features thick targid lips, broad shoulders, and large boxes. They often stoop as they walk. During the summer months they are fairly well, with a good appetite; and although they may part after exertion, do not suffer from noticeable shortness of breath. In the winter they have a persistent cough, and cannot indulye in neisy games, as such movement produces instant dysposes. The cough is loose and party-smal; sometimes they expectative frothy, yellow phlegm. The face is usually livid and party-booking. The appetite is expections, and usualing is frequent after rough. The bowels are castron.

On examination of the class we find general hyper-resonance; and the respiratory sounds are more or less concealed by a fine crackling rhoughus. It as often happens, there is distanton of the broacht the respiration in the inter-scapular region may be broachtal or even covernous. As a pule the

temperature is normal.

Circuiz enterts of the stomech or howels, or both, often occurs in these cases. The appetite is poor; the beerels are loose and contain much muchs; and the loss of flesh is rapid. With great care the pulmounry matrix may be kept under, and if the child's strength be properly supported, life may be prolonged until the return of more genial weather, when the potient very quickly begins to improve. In too many cases, however, death ensures as a consequence of an intercurrent attack in which the temperature rises, and the symptoms which have been described as the consequence of expillary brenchitis are noticed.

A low, aged tharteen years, both of whose parents were said to be "weak in the closet," was healthy up to the age of eight years, when he had an attack of member followed by pertussis. From that time he suffered from rough which was always worse in the winter. He was admitted into the

Victoria Park Hospital in February for a severy brenchitis.

The boy was fairly nourished and well built, although short for his age.

His chest was full and expanded above, but at the lower part on each side there was some infra-manusary depression. The spine was straight. The heart's apex was in the fifth interspace, three quarters of an inch to the tauer side of the nipple line. Its impulse could be also felt in the epigastrium. The akin was dry and harsh; the fingers were slightly dishbed; the liver and spicen seemed pushed downwards. The face was congested, turpid, and more or less livid. The breathing was laboured, and the boy could not be down in his hed. The temperature was normal and the urine healths.

On examination of the chest the percuesion note generally was hyperresument; and everywhere over the chest the beach sounds were concealed by a copious, fine, eracking rhenchus. This at the base was very superficial and ringing. The toy remained in the hospital until June, being sensitives better, sometimes worse; and the amount of rhenchus varied considerably from time to time. The temperature rarely case above 20. On his discharge, although his breathing was much better and his general condition fairly good, much rhonchus remained at the bases of the lungs.

Diryannic.—There is little difficulty about the diagnosis of broughitis. In the milder form a mistake is hardly possible unless from teething or other cause there is a high degree of fever. With considerable pyraxia the descriptment may be mistaken for measles or brougho-paramonia. In the first case the occurrence of the characteristic rash on the fourth day will clear up the difficulty. In the accord, the absence of distress in the

face, the normal pulse-respiration ratio, and the limited amount of rhos-

class detected by the ear will furnish a sufficient distinction.

In capillary bronchists the laboured breathing, the thick and often puroxystical cough, the copious nucceus rides heard with the stochosope, combined with the absence of dulness on percussion and of bronchial er blowing breathing, are sufficiently distinctive. A point of great superinner is the exclusion of atchertasis and of estarrhal presuments. The new features introduced into the case by the occurrence of either of these coughlestions are referred to showhere (see pages 467 and 436).

Proposis.—As long as the catarrit remains limited to the larger takes the prognosis depends upon the age and general strength of the patient. However slight the disorder may be, we can never feel sure that in newborn, a weakly, or a rickety infant fatal collapse of the lung may not follow anexpectedly. In all such cases, therefore, we should wurn the pureris of this possible darger, and caution them to match carefully for heidily, drownings, or other sign indicating insufficient accretion of the blood

In expillary broadstis the denger is great, however healthy the child may have previously been; and if the patient to weakly or the subject of rickets, the peril is really argent. Indeed, few such cases recover. The cotremity of the danger is indicated by a high degree of interference with the normion of the blood. If the child become intensely apathetic or incsistibly drowny, with blueness of finger-embs, an asky-gray face, duff and historices eyes, and a normal or sub-normal temperature, death can scarrely be avoided. Other signs of unknownable import are suppression of the cough, great rapidity of the pulse and respiration, smallness of pulse and fulness of superficial veins, with retraction of the base of the chest in inspiration.

Signs indicative of collapse of the lung or of broache-preumonia augur

ill for the child's chances of recovery.

Fourteent.—A pulmonary enturels in a child, especially if the patient be weally or of a rickety constitution, should never be treated lightly. In the mildest case the patient should be kept in his room and be made to take a saline mixture containing a few drops of ipecustratus or minorial was to each disse. If there is any rise of temperature, he should be at once put to bed. This is exential. Perfect quiet is necessary for a feverish child; and even if pyrexia be absent, the regone and equalic temperature of his cot will hasten the julient's recovery more certainly than the nest energetic medication. Indeed, without this presention treatment loss more tion half its value. In the next place we must employ counter-irritation. There is, however, a right and a wrong way even of using a position Weak applications in these cases are better than strong irritants; for a far more effected impression is made by acting sleeds upon a large surface of the skin, than by producing a more violent irritation of a comparatively limited area. One part of mintard should be diluted with tim or six times its bulk of firely ground bissed most. The ingredients should be easfully mixed in the slry state and made into a positive with hot but not beiling water. The application should be sufficiently large to cover the whole front of the elect, and should be allowed to remain in contact with the skin for six or eight hours, or even longer if the child can bear it. A layer of cotton wool should be then applied in its place, and a fresh poultion of similar strength should be made for the back and be kept on for an squal period of time. An infant will bear this strength well. For m obler child a larger proportion of mustard may be used; but it is seiten wise to coupley an application which cannot be beene for at least an hours.

The effect of these measures is seen very quickly. In the milder forms of the discuse the hard cough becomes soft and loose, the sceness of the chest unbeides, and the povexis quickly disappears. Even in the more severe variety a sensible diminution in the distress and the labour of benthing is usually manifested when the skin becomes very red from the action of the irretaint.

The dist should consist of milk and broth; and the child should be

allowed to think freely of thin barley-water.

For medicine, a grain of calcused should be given in a little sugar, and be followed after a few hours by a dose of castor-oil or other mild aperisat. A febrifage mixture can then be prescribed, such as citrate of potash or the solution of acctate of ammonia with a few drops of iperarumha or animonial wine. A pleasant form in which these can be given is the following:—

L

Sig. To be taken every four hours.

The above is anitable to an infant. For older children the proportions

may be increased, or the draught can be given more frequently.

Unless the branchitis be severe, the branchial derangement quickly yields to this treatment and the patient is soon convolution. If the cough custime after it has become loose, and the child's appetite has returned, a few drops of puregoric and fincture of squill added to the mixture will soon effect its removal. Stimulating expectorants are as usoful at the later stage of the estarch, after the cough has become loose and easy, as they are injurious at an earlier period when it is hard and poinful.

In capillary bronchitis the child should wear a flamed night-dress, and the temperature of his room should be kept at 70° or 75°. It is also advisable to moiston the air round his set by vapour from one of the many varieties of bronchitis kettle, or by Dr. R. J. Lee's "steam-draught inhaber." The positions of the class should be carried out energetically; and when the skin can no longer bear the switant, the chest should be unapped in

collon mool.

In this arrore form of the disease stimulant expectorants are not only meless as remedial agents, but tend directly to increase the congestion and irritation of the mucous membrane. However feeble the child may be, if the cough is hard and the chest tight, ammonia, squill, tolz, and other remedies which exercise a stimulating effect spon the mucous monotonic should be avaided. In such cases the distress of the patient is most certainly relieved and his strength improved by medicines, such as solines with species which promote free secretion from the tabes. If accessury, this treatment can be supplemented by general stimulants, such as slooked; and in weakly children it is very necessary to counternet my depersong effect of the remedies upon the system by the free administration of brandy-and-org. In young children whose strength is good it is often useful at the earlier periods of the disease, when the cough is hard and much soreness is complained of in the chest, to give two or three grains of powdered ipomenanha in a temperadul of muchage twice a day on an empty stomach. The emetic in these small doses excites vomiting with very little effort, and causes the expulsion of much mucro from the stomads and lungs. After a few does of this remedy the character of the cough often undergoes a marked change for the better, and the distress of the patient is greatly relieved. So long, therefore, as there is fever with had cough, tightness behind the sternum, and lividity of the face, we should confine ourselves to ipocacamalas or antimonial wines (N. v.-x.), observe of potash (gr. iij.-v.), solution of acetate of assessmin (R. x.-xxx.), spirits of nitrous other (N. x.-xxx.), and similar remedies.

Although the medicines recommended are all such as aid the free serrtion of mucus, they are not given with any object of producing depression.
On the contrary, we should watch the patient carefully for signs of prostration, and hold nurselyes in readiness to operact any undue solutive influence
by alcoholic stimulation. We must not, however, be in a heavy to give wine
or brandy. A small feeble pulse will be often found to become fully attended according to a socretion from the influence nurseus membrane becomes more

copious and the congestion of the pulmenary vessels declines.

In children of four or five years old and upwards a grain of calcust with two or three grains of juliquies at the langinging of the treatment is always sucful. It is consecutary to keep up a free action of the bowels, for those cases appear to be little beactited by purging; but a thorough unloading of the free is very modulus a preliminary measure. Even in infants had a grain of calcused followed by a tempoonful of caster oil often some to reader the after-course of the disease milder and more tractable.

The above method of treatment will notably be found successful in cases
of primary capillary bronchitis, when the petient is seen before collaps of
the long has occurred or the disease has passed into a chronic bronche
passement. It is important that we should not allow ourselves to be
tempted, by the apparent prostration of the patient, to prescribe annumin
and other simulating drugs. When the pulmonary results are computed
and the obstruction to the circulation is entreme, the boart labours, the
tace is livid, and the pulse is small and facible; but these symptoms extstitute no real nullication for summania. We shall best relieve the impeliment to the pulmonary circulation and promote the aignition of the blood
by measures which relieve the congestion by producing free secretion from
the overloaded vessels.

Opium should not be given unless the restleament is great, and even then the remedy is hardly a judicious one; for anything which dalls the sensibility of the beoneteal nancous membrane hinders the expulsion of the pidegm and favours collapse of the air-cells. Acousts, verstrain wirds, and other powerful cardine solutives are only admissible during the first forty-eight hours, and must on no account be given to young infants.

In expillary broachitis as in the case of the nelder forms of the discase, when the cough is quite bosse and secretion free, small doses of morphia or paregone, with ammonia and infusion of scnega or experimiwill seen bring the disease to a favourable ending. Profuseness of scretion at a late stage of the illness is an indication for small doses of iron. In infants, perhaps a few drops of ad volatile make the better remoly; but after this ago the administration of four or five grains of the farmer of iron with a drop or two of his morphis, and a few grains of the beneficaste of sods, is attended with great benefit. So, also, a grain of armine with a couple of drops of dilute nitric soid, and the same quantity of lasttoma or solution of morphis, given several times in the day, will see besse up the relaxed mucous membrane and diminish the frequency of the cough. These remedies must of course be confined to the later stage of the disease, after the pyrexia has subsided, and when secretion is copious

from want of tone.

In all forms of bronchial caturrh in weakly infants or rickety children the patient should be carefully entiched for signs of collapse of the long. If we notice the child suddenly to become drowsy, and find that this change is associated with lividity of the face, very mind and shallow breathing, and a fall of temperature to a sub-normal level, conrectic measures should be taken to promote re-expansion of the collapsed lobules (see Abelentais).

A secondary broachitis, such as that which is upt to occur in the subjects of rickets, must be treated upon the same principles; but in these

cases alcoholic stimulation is usually required early.

In abcossis bronchitis the child should, if possible, he sent away for the winter to a mild climate where he can pees his time out of shoes without risk of chill. A sen toyage is very beneficial to these patients. As this form of the discuss essally occurs in scrofulous children, the general treatment which has been recommended for that constitutional condition should

be put in force.

The intercurrent acute attacks must be treated upon the principles which have been stready indicated. Still, after the discuss has returned to its animary chronic course expectoration is often very difficult, and the breathing appears of , and with the stellocomps we hear much large building at the bases and for a considerable distance over both langs. In these cases the ordinary expectorants seem to exceeds lattle influence unless combined with busics. Qualities or quinne and iron, given with tracture of equili, iponeumals, and a drop or two of solution of morphia will often be found accessful in relieving the symptoms. Cod-liver oil is also of great value not only in improving the general health, but also in checking secretion and promoting the expellation of pillegen. The taken internally has sentetimes a mirked influence in checking secretion and giving a more healthy tone to the mircons membrane. A drop of liquid the may be given on a small lamp of segar two or three times in the day; or for children who can take pills the remedy may be given as follows:

B.	Picis liquide	gr. IJ.
	Lycopodii 174	gr. j.
	Palt glycyrhian	
	Glycentti	Q.A.

M. Ft. pilala.

Sig. To be taken three or four times a day.

Inhabitions are of service in these cases. The vapour of hot water impregnated with creasots, earlobe acid, or fincture of todies (of either twenty drops to the pint), or of oil of turpentine (one drachm to the pint), can be inhabed for half an hour several times in the day from Dr. R. J.

Lee's " steam-dmurbt inhalor,"

The hypothermic injection of pilocarpine is often useful. In the case of the boy referred to above, one-differenth of a grain of the hydrochlorate of pilocarpine was injected under the skin twice a day. The remody caused explore awenting, and produced coniting by which much much was expelled from the longs. The effect of the drug was decided in diminishing for a time the amount of secretion, although it produced little permanent impression upon the discuss.

Counter-irritation of the clear with the fincture or limment of iodine

is often attended with great benefit; and warm woollen clothing won next to the skin is consumal to improvement. Still, in spite of all our efforts, although the clold may appear better for the time, a cure is hardly possible in pronounced cases so long as the patient remains in a cold, dump climate. His only hope of throwing off the discouches in his removal to a smithble air where he is not exposed to the constant risk of chill, and where no untoward conditions are present to interfere with his twomable progress.

CHAPTER X.

имричяема.

Princetor emphysema is not uncommon in the child. As an ecute bear it is of frequent occurrence, arising in the course of various forms of pulmonary disease. It is then of little consequence, is accompanied by few symptoms, and usually subsides when the primary complaint has desopeared. As a chronic affection emphysema is not with much more mostly in early life; but a child so affirted presents all the symptoms common to the adult sufferer, and may have his health permanently injured and his life considerably shortened by this condition of his long. The lesion may be seen both in the resicular and interlobular forms, and has been found at all periods of childhood, even in new born infants.

Garation. Pulmonary emphysems is always a secondary disease, and appears to be mainly due to forcitie distintion of the nir-cells in the set of coughing. It is found in various forms of long disease, essecially in wheeping-cough, broachitia, and entarrhal paremona. Of these the violest cough of pertusons and catarrhal paremona produce the losion with the greatest certainty, and supplysema as a constant complication of every

serere attack of these two discuses.

It assems probable that over-distention of the sir colls in these cases my be effected both by inspiratory and expansory mechanism. In sleeping-cough and broughitis many nir-vesicles are rendered impervious by patches of disseminated collapse. In lobular provincing considerable. portions of lung may be closed to the entraire of air. In all these cases the diminution in the respiratory surface necessitates increased energy of inspiratory movement, so that the airconsicles which remain pervious are condistended. Again, a serious strain upon the air cells is induced by strong expensiony efforts made when the glottis is closed, as when the patient is preparing to cough. Such efforts drive the air into the parts of the large which are the least supported, and dilate to excess the absoluin these situations. In pertussis, especially, where the child strives with all his might to repress the enugh, the strain is often very severe and long continued. Marked emphysems of the spices and antenier neurgins of the men may be excited by this means, and if the over-stretched walls of the air-cells have been injured by the distention the lesion may be a pertransit one. Usually the alveor return to their normal size when their Valls reuse to be distended. It is only when the dilatation has been carried to an extreme degree, so as to impair the electricity of the abreolar panetes, that the distention continues as a permanent condition,

Besides the discuss which have been mentioned, any complaint of which cough is a symptom may give rise to simplywein; as phillinis, where the absoli at the bases often become distended; plemist, where the absolutes of the sound long are often temporarily over-dilated; also meditions largeritis, if prolonged, and assubrances crosp. In advanced rickets, where there is marked groowing of the sides of the clast, the sterrous is forced forwards at each inspiration, and the interior borders of the burgs become over-distonsted with our. The mechanism of the form of employeens is referred to elsewhere (see page 134). The tendency to purpetuation of the vesicular dilatation appears to be influenced by the scrotulous disthesis. It may be that in that constitutional condition the elasticity of the abreolar walls is more readily impaired; or it may be that the encophibility to enturn of the polinomary membrane and other micross tracts, inseparable from the strumous label; induces a more frequent adpersistent strain upon the six-cells. In any case the subjects of choose emphysican in early life are usually found to be well-marked energies of the scrotulous disthesis.

Pulseously employees a may be found at all ages. It is not uncommon even in intents recently born. Thus, out of thirty-seven cases collected by Hervicus, nineteen occurred in infants under twenty days old said of these one had leved no longer than two days. So, in a child who died of termine under my care in the East London Children's Hospital, agel fify bours, the lungs after death were found to be emphysications along the anterior margins, and also in spots over the surface. There were an

solid patelss of unexpanded those in each lower lobe.

Morbid Asstony - Pulmonary emphysima may be of the interlegter

or vesicular variety.

In interfolutor emphysems the air occupies the connective tions bing between the lobules and under the plents. When infiltrated into the tissue between the lobules, six collects in small bubbles like little back. When in the enb-plemal issue, it forms blobs of varying size—sometimes isolated, when they may reach the size of a small unt; sometimes armiged in lines, when they are essely larger than an ear of wheat. Their shape is slongsted or spherical. When thus extravasated into the pulmonery resnective fissue, the air Im been known to make its way into the activity or posterior mediastinum and thence into the sub-cutassous tissue of the face and neck. Thus, in a case published in 1834 by Dr. Eird Hempath a child eighteen months old who had died of heunchitis sections to who pangeough - sir was found to have escaped from one of the letzler sented at the root of the right lung into the anterior mediastinum. Suring from this point the sir, without entering the plenra, had escaped stong the sub-pieural connective tissue and formed numerous enphyserators swellings on the lung. It had distended the arrelar tions of the actors mediastinum, and passing upwards had infiltrated into the cellular thous of the accir, beneath the deeper cervical fascia and the subcrimeron tissus of the reck and chest. A similar case, in a child four mouths old, has been recorded by Dr. Pepper, of Philadelphia. In rare cases preture thouse has been produced by rupture of the picture and compe of he into the pletral cavity.

Interiolettar empleyeerna is almost always produced by repture of sa nir-reside during a violent fit of caughing. It may, however, he ille much

ed injury frees without.

In consular engagement the spices and unterior borders of the large of the parts commonly affected. These portions are dull white in colour, stry, and bloodless. They convey to the finger a peculiar soft associawhich Herricux has compared to that noticed when pressing a poor of undding covered with satim. Close inspection in a good light sloves a resultitude of little, bright, transparent points the size of a pink lead. Sometimes suther larger projections are visible, and these are often angular When the chest is opened in these cases the large remain distended, and their anterior burders are usually in contact so so to hide the greater portion of the cardiac surface.

Symptows — Extended for employeess, unless the nir spread through the media-fraum to the ant-cutaneous tissue of the neck and chest, gives rise to no symptoms. Its existence is only discovered on post-mortess examina-

tion of the body.

Even in the evaluator variety the limited amount of emphysems which is found when the disease is neute, as in cases of catavalual postmonia, or made broughties with collapse, gives little evidence of its presence. Our knowledge of the morbid austony of such cases enables us to infer its existence, but the occurrence of abnormal dilatation of the air cells gives rare to no ablitional symptoms, and produces no characteristic modification of

the physical signa

It is in the chronic form of the discase that we are able positively to determine the existence of over-distrition of the pulmonary alcook. In a personneed case of emphyseum the symptoms and physical signs are those familiar to us as a consequence of a similar condition in the adult. Such children, as has been already remarked, almost always present the chararteristic features of the strumous constitution. The patient is usually short for his age and of sturdy build. His head is rather large, his neck short with presument jugular veins, and his face, pulled with a blurish tint round the mouth and eyes. The chest is flattened laterally at the base, and the lower part of the stermin is somewhat projecting. Consequently, its suttro-posterior dismeter is increased. The intercestal spaces are obliterated, and in rure cases alight bulging may be noticed show the chricles. Semetimes the back is a little rounded, but I have never noticed the steep of the shoulders, which is such a marked feature in the adult. trained this emplication were combined with a presistent chronic bronchitis. Be heart is prohed down so as to be felt beating in the spigastrium, and the liver and spleen are often appreciably displaced.

When a deep breath is taken the chest-walls rise and the shoulders are elemed; but there is little expansion of the upper part of the thorax, and the constriction at the larse is exapprented. On percussion, general hyperresonance is found in the front of the chest and the cardisc area of dalmess is lessened. With the stethescope we find that the breath sounds are lond well whereing above, weak although very harsh below, and more or less

more-sibilant rhonelars is bound at various parts of the chest.

The symptoms vary according to the condition of the pulmonary mucous membrane ; for with such a state of lung, the child is excensively imseptible to Irosh enturch. At less best his breathing is habitually short and oppressed, but he coughs little and his appetite and spirits may be good. It is when a new estarrii comes on that his troubles begin. When this actideat happens, the breathing at once becomes difficult and wheezing, and to is subject to attacks of dyspassa which appear sometimes to be of the atture of estimatic seigures. There is, however, another cause for these attacks. In acrofulous subjects the broughol glands of the mediastics and lange are upt to enlarge as a result of pulmonary irritation; and these by their pressure upon the vagus, or directly upon the nir-bules, may produce serious impediment to the entrance of sin. The child's cough is busky and often occurs in paroxyons. He cannot lie slown in his bed, and is track troubled at night by cough and dyspaou. If these symptoms contirms, the patient process into the condition which is described elsewhere take the name of chrotic broachitis, and a case is there narrated in which

chronic pulmonary esturb was associated with permanent employees of the luncos.

In cases where the attacks of estairs are only occasional and pass completely away, the habitual state of the child is not unsatisfactory; but he is liable at any moment to be hid by under the influence of a fresh chill

I may cite as a good example of chimnic pulmonary emphysics the case of a little Loy, agod three years, stout and thick-set, with large onte to his bones. The child only finished cutting his teeth at the age of two years and one months, and was no doubt slightly rickety. He was said to have been whereing off and on for eighteen mouths. Ten north previously he had been ill for a month with a severe attack of breaching and had since that time been a constant sufficer from whereing and short noss of breath. In this boy the upper part of the circu was fall and rounded, and there was some considerable constraint at the base. The heart's upon could be seen and felt in the opiguations and between the point and the left nipple. The percession note was drun-like all our the front of the chest, and much whistling and storing rhenchus was been over both langs. The learn-sounds were besithy.

Another little boy, aged two yours and once meaths, was said to have had a cough all his life, although at was better in the sourcer than the sourcer, and night even sense altogether for about six weeks in the warned weather. The child was twelve arouths old before to out his first work, and slid not walk until the end of his second year. The ends of his long house were full; but his limbs were straight, and he was not a marked specimen of rickets. The breathing was not much oppressed; the cough was hourse, and the voice leaky. He was not subject to attacks of detressing dyspoon, and was said never to have lost his voice. This little lad's chest was perceptibly retracted in the infra-maximary region, and the larver part of the breast-here projected. The spine was straight and the back rather flattened between the sempalse. At each breath there was a slight ambing of the epignatrium. On percession there was ground hyper-resonance of the front of the chest, especially along the sternan-

Some sibilant and large bubbling risonchi were heard at each less tahind.

In such cases as the above the emphysema is no doubt kept up by the repeated attacks of pulmonary control. It is possible that if by remises in a scritchis climate such intervarient attacks could be prevented the emphysema might subside and the large return to a normal condition; but upon this point I cannot speak with certainty.

It is not often in the child that serious secondary effects, such as passive congestion of the liver and kidneys, dilated hypertrophs of the right heart, ordensa, etc., are noticed, although in some cases I have thought that the right ventricle was larger than natural. The danger of the disease consists principally in the repeated attacks of bronchitis from which these patients almost invariably suffer, and in the tendency of such attacks, if not immediately fatal, to run a chronic course. Usually, some or little the life of the patient is brought prematurely to a close by this mass.

Dispense.—In the acute form of employeems there are no symptom sufficiently distinctive to indicate with certainty the presence of the leson. This, however, is of little consequence, for no special treatment is required. In the large majority of cases the dilated air-rells return to their natural size when the cause or causes which have induced the distention are no longer in operation.

In obsenie couplysems the chest distended in the upper regions and hyper-resonant on percussion, the diminished area of cardiac delaces the pulcation at the epigostrium, the displacement of the liver and spleen (if person), and the wheezing breath-sounds are sufficiently characteristic of the lesion.

Proposets —In chronic emphysems the prognosts is not forwardle; for although the disease in itself is little hartful to life, the accompanying tendency to caterri is a serious danger to the patient. If the child be found to safer from reposted attacks of broughitis, and in the intervals to be whosey and sount of breath, we can never feel satisfied with his condition or at case with regard to his future prospects.

In cases of interlobular emphyseum, where this has led to infiltration of air into the subsultaneous tissue of the neck and chest, the prognosis depends chiefly upon the disease, in the course of which the complication has arisen. The presence of subsultaneous emphyseum is probably of little consequence, for the infiltrated air usually becomes absorbed very

quickly

Frontmost.—In cases where neute emphysems is suspected no special beatment is required. So, also, in interlobular emphysems, where this has made itself evident by the passage of air into the subsubmecon tissue, no special measures are needed to hasten the absorption of the infiltrated

gues. They may sidely be left to disperse at leisure.

In chronic emphysium any existing bronchitis should receive immediate attention, and the treatment must be conducted upon the principles described elsewhere (see Bronchitis). In the attacks of acret dyspacea. emetics are very useful; and iperagnative wine or the turpoth mineral, gick of which produces free secretion of mucus, are to be preferred for this purpose. A tempoonful of the leener, or three or four grains of the latter in syrup, may be given every fifteen minutes until an effect is profixed. If the attacks continue, the feet should be stocked in a hot mustapl tot-bath, mustard poultiess should be upplied to the chest and back; and a draught containing other and the fracture of Jobella may be given every hour. Children bear labella well. Ton drops of the ethereal tinetme may be given to a child of two years old every hour or half hour without my danger. In very severe cases the futues of Hintrol's powder may be inhaled. When the bronchitis has subsided from should be given A good form for its administration is the turbrate of imp with include of potacorns. The combination makes a perfectly clear minture with distilled unter. It may be sweetened with glycerine.

The field of the child should be nutritions and digostable. The diet abould be regulated upon the principles already had down for the treatment of scrotals. In fact, emphysemators subjects, who, as has been said, are very often of the strumous habit, require in all points such general treatment as is recommended elsewhere for children suffering from the surfalous eacheris. The most important point in the treatment of pulsarray emphysema lies in the adoption of means for the prevention of entarch. With this object we should argue upon the child's purents the necessity of removing the petient to an equable climate where to can free an out-shoot life without danger of child. It is only by keeping the lungs free from catarris that we can hope to premote a return of the sir-cells to

their normal condition.

CHAPTER XL

GANGRENE OF THE LUNG.

Georges of the lung is not a common disease of skildhood. If the number of recorded cases he a fair measure of the relative frequency of the lesion, this form of illness would appear to be much more often not with in wint life than at an earlier age. A contrary opinion has, however, prevaded, cliedly on the authority of E. Bondet, who in the space of fire menths met with five cases of paintonway gargeme in the child. This experience is, however, too exceptional to furnish a satisfactory line for statistical calculation.

The extent of tissue which undergoes the gasgrenous change is similar.

The lesson may occupy only a limited patch in one of the lebes of constraints of gasgrenot or may involve the whole of the lebe, or even of the

long (diffused gaugrene).

Constron.—Pulmonary gaugetes may be the consequence of a person condition affecting the whole body, or may arise in constitutionally builtly subjects from some local cause which interferes with the circulation of the

blood in the Img.

In the first case, a disposition to spontaneous mertification of times is manifested as a result of the cruptive fevers especially measies, and other depressing diseases which cause great prostration of nervous power and leaver the nutrition of the whole body. The gangrens is availly of the diffused variety, and the lung is often not the only organ which offers from the merbed tendency. These may be also gangrens of the game the checks, the pharyax, and in female children of the tagina, and these conmonly precede in point of time may manifestation of a similar affection of

the pulmonary organa.

Of the local carross which interfers with the circulation through the lungs the most common in children is probably the presence of a foreign body in the air passages. The irritation of the intrading subshare sets up a form of posemeous which may run rapidly into gangrens. Of the he complex of the lesion which have come under my own care one was a case of this kind. It is narrated shortly in another chapter (see page 529). In cases where lober passements ends in mortification of the lung the guigrenous lesion cannot be looked upon us a natural consequence of the pale monary inflammation. Indeed, the inflammatory discuss is often not a true crospons pnemicens, but an armic hepatisation of the lung resulting from the presence in the organ of some local imitsat. Thus, a variety of pulmonary inflammation with which gaugeens is often associated is that due to emboli except into the pulmonary circulation from an autometer clot formed in the right side of the heart. The irritation of these embed causes complete stasis in neighbouring search, and arts up patrefactive and gaugeene in the lang tionse around. Bouillard states that this tocalcul may happen in cases of true crompous passumenia and determine the

gargrenous change; indeed, according to this observer, a psculiar tendency to the formation of each coagula is a common feature of the pneumonic disease. But even if this be the case, the poortification of tions is induced by something superadded to the original lesion, and is not to be regarded as an ordinary incident of the croupous form of pulmonary influenceion.

The retention of decomposing secretions in diluted broach and cavities in the lung is another local cause of the gangrenous lesion in the child. It may arise in the course of pithisis, or at the end of an attack of acute enterhal paramonia. So, also, extensive homorrhage into the lung, if it undergo patrefaction, is said to be a cause of gangrenous changes in the corrounding tissue. No doubt in all these cases a debilitated or cachectic state of the system favours the occurrence of palmonary gangrene; but mustification of the lung may arise in children of sound constitution who are well nourished, and whose sanitary surroundings have been to all appearance

sitisfactory.

Market Anatomy.—The commonest form in which gargrene of the large is not with in the child is that of a patch of mortification situated in the centre of a lobe and surrounded by gray hepatised tissue. The gargrenous patch consists of a pulpy detritus, yellowish-grey, dark green, or slite grey in colour, and intelerably offensive in its smell. It gradually breaks down and loves a certity with disintegrated gargrenous shredu adhering to its walls. This is the circumscribed variety in which the number of spinocalated masses may be one or more. In some cases the diseased area is very small, and the losion consists merely in greenish streaks of gargrenous offens and semi-liquid consistence in the centre of a bronche-paramonic nodule. In other instances we find patches of cutarrhal paramonic nodule. In other instances we find patches of cutarrhal paramonic nodule. In other instances we find patches of cutarrhal paramonic nodule. In other with a bronchus.

In the diffused variety the gaugesnous change involves more or less of the whole lobe. Thus, in a case recorded by Dr. Hayes, after the death of the patient—a boy of seven years of age—the lower half of the inferior lobe of the right lung was in a state of grey hepatisation. Its tissue was very frishle, and drops of pus exuded from it on pressure. The remainder of the lung was of a dark purplish colour. Its tissue broke down on the slightest pressure and gave forth an unbearable stench. The centre of the middle lobe was occupied by an irregular enerty, about the size of a

large wahrat, filled with putrid matter.

In the circumscribed form the sent of the lesion is usually the lower lobe or the periphery of the organ. In the latter case the pieura may be inflamed or may participate in the sphacehiting process. In my two case, related obsewhere, not only was the whole of the left long in a state of gaugeene, but adhesions had formed between the adjacent layers of the pieura at the posterior surface. Moreover, the chest-wall had been perforated in the eighth intercestal space, and a communication had formed between the disintegrated long and an extensive absents which by outside the wall of the chest.

If adhesion of the plears does not occur, pneumothorse may arise from

rapture of the lung into the pleural cavity.

In many cases the bronchini glands are enlarged and cheere. In two

of Billiet and Barthez' cases they were gangrenous.

Symptoms.—The symptoms of the disease are often very indefinite. They may consist only of general decoping, disinclination to exertion, paller and wasting, with slight cough and obscure pains about the class. The physical signs may be also indefinite, consisting merely of slight agness at a certain part of the chest, with feebleness of breath-sound. After a time the child dies without any more characteristic symptons having been developed, and the antepsy discovers a patch of gaugene in the larg. In almost all the cases observed by Rilliet and Burther, these experienced physicians failed to detect the nature of the illness during the life of the patient.

In more pronounced cases the disease may begin gradually or saldenly. In the first case the child is noticed to be failing. His apparite is poor, he looks pale, and his flesh feels flabby. Soon he complains all pams in the class, coughs occasionally, and sits by the fire if the weather is chilly, refusing to play, and objecting to any exertion. He is thingy and sleeps restlessly at night, being often disturbed in his sleep by cough.

The sublies onset may be announced by headache and sickness a feeling of shelliness, or even a rigor. The child is feverish, with a dry sking is very restless and anxious, and the pulse is quickened. Perhaps there

may be pain in the side and a dry cough.

When the symptoms are fully developed the patient is pale and weakly looking, with a laggard expression of countenance, and dull, sanker eyes. The tongue is foul, and appetite is almost completely lost. The boxels are soldon relaxed; sometimes there is marked constigution. There is often great restlesoness, so that the child is in constant uncess movement in his bed. The pulse is fooble and frequent, 136-150; the respirations 30-40. The temperature is high, and may teach 103" or 104" in the evening, usually falling in the morning to 100° or 101°. The cough is frequent and loose. It is often excited by morement and may be accomparted by poins in the back or side. Usually there is expectoration even in young children, for the sputum is too offensive to be availoued. It exhabs a nickening ofour, and is firstly and reddish-beown in colour. On standing it deposits a reddish-brown, shreddy sediment, containing greyish puts granules, in which Leyden and Juffe have discovered bacteria and a special funges-the leptothrix pulmonuris. In quantity the expecturation varies from time to time, being sometimes copeers, sometimes sensity and none terricions. Ocusionally the fetal edeur censes to be noticed, but it neathy quickly returns. A similar offour is perceived in the breath of the pricest. especially during cough. As in the case of the expectoration, its offensiveness occasionally censes for a time. The cough may be so harassing and frequent as absent entirely to present sleep; and the consequent exists tion, combined with the unwillingness of the child to take alogure nourishment, adds greatly to his weakness.

In most published cases great variation has been noticed in the intensity of the symptoms. Sometimes the pulse is excessively frequent and freide, the eyes sunken and historiess, the restleaness entreme, the cough distressing, and the face earthy or lead-coloured. The leasting also may be laboured and difficult. Thus, in a case recorded by Dr. Sturges there were attacks of violent dyspanes in which the face looked pinched and blue, the expression was terrified, the body was event with a clammy sweat, and no pulse could be felt at the wrist. At other times the symptoms are less distressing, the face looks brighter, the cough is quieter, the pulse fuller, and the manner more composed. The patent, however, from day to day grows evidently weaker, and in the large magnify of cases sinks after a further period of suffering. Sometimes death is proceeded by one or more attacks of hamoptysis. In a case reported by Dr. Hayes, the child, on the afternoon before his douth, after a fit of coughing, spat up half a pint of red, frothy blood; and the hamophysis was repeated in the evening shortly before he died.

In some cases gangrate of the gums or cheek has been observed; and if the signs from the lungs are not marked, the fator of breath may

be attributed to the presence of these Issons.

The duration of the illness in cases which terminate in death is never very prolonged. Dr. L. Atkins, who has collected thirty-one cases of the affection, states that it varies between two days and twenty. The child namely dies from asthenia. The complexion grosss more and more livid, the pulse weaker and more rapid, and death may be preceded by a gusta of blood from the mouth or by rapture of the lung and the formation of guerno-thorax.

In the rare cases in which recovery has been recorded, the feter of the breath disappeared at the end of a fortnight or three treeks; but con-

valescence was very alone.

The physical signs in cases of pulmonary gaugeons are not distinctive of the lesion. At first the signs are usually those of brouchitis. Percussion of the closet discours no dubres, and with the stethoscope we find merely large bubbling rhousless pervaiing the lung on both sides. After a few days a limited area of dubress is detected at some part of the chest—annily the posterior base; the breath-sound becomes brouchink, and the rikes are drier and more crepitating in character. The dubress usually entends its area and may pass to the front of the chest. If eventually a carry form, it may give no evidence of its presence unless its situation be near the periphery. In that case the breathing may become broughink, blowing, or caserrous, and the rhoughus larger and more distinctly garging. In the case of a large earity amphoric respiration with metallic

finds may be discovered at some point in the dull area.

In a case which was under the care of my colleague Dr. Donkin, in the East Loudon Children's Hospital-a microcophalic idiot, between two and three years old, who was admitted for rigidity and paralysis of joints, with partial loss of consciousness—the breath a few days before death was noticed to have an insupportably offensive odour. The child began to cough slightb, and the pulse and respiration were greatly harried. On examination of the chest dalness was discovered at the left base, passing round from the back to the front, being most intense beneath the left smills. Much large habbling monthus was heard all over both sides, especially the left. The child grew rapidly worse, the face became much pinched, and peteckie appeared upon the abdomen. The temperature, which had been always high, rose to 108" shortly before death. An autopsy revealed two small embolic infractions in the left lung. The lower lobe was completely solidified, and contained a cavity the size of a hea's egg. This exemption was partially fixed with a membrane, and held much stinking find and detritus. The right long was merely congested with patches of collapse.

In this case the high temperature noted before death was probably due more to the condition of the brain than to that of the lung. The cavity seems to have been the consequence of breaking down of an inflantationy consolidation set up by a metastatic infunction, the gangrenous nature of the process being determined by the low nervous power of the

pationt.

Dispussis.—On account of the oncertain character of the symptoms and physical signs which present no definite features by which the disease

can be recognised, we are forced to rely solely upon a gangrenous ologfrom the breath and expectoration for evidence of the nature of the lesion. Without this symptom there is really nothing in the condition of the child to suggest that the inflammatory process has gone on to mortification of tissue; for a cachectic appearance, great feebleness, a hargard look, constant restlessness, and waying intensity of symptoms are common to many forms of illness. If the characteristic force of breath be present alone, it may be the consequence of other conditions. In gangrenous simulities and gangrene of the playrax the same plenous enon may be observed; and in many cases of carrhosis of the lang. when secretion is retained and becomes decomposed in the shinted tubes. the odour of the breath may be exceedingly offensive. In the latter discase, although the breath and expectoration may be very offensive without obvious gangrene being present, shreds of spincelated tissue are, no doubt present in the matters discharged from the long. If gangrens of the lang coincide with the same condition of the month the unpleasant odear is usually attributed to the lesion which is within reach of the eye, and the palmonary gangrene may not improbably pass arrecognised. The appearance of officialite expectoration, however, at once directs attention to the lung, and if homophysis occur, the blood giving out the some unbearable odour, doubt is no longer possible.

In infinite and the youngest children expectoration is sometimes about but a gaugemous odpur from the breath is seldem wanting. Feter of the breath in such cases is the more characteristic, as filevial industion of the long is very rare below the age of six years, and gaugeme of the neath

is not often met with during the first two years of life.

Proposis.—Recovery is so exceptional a termination of the disease that in any particular case the patient's chance of escape is very small. Variations in the security of the symptoms are a common feature of the illness, and we must not allow our hopes to rise too high merely because we find the child looking brighter and more composed, and notice that the field solony from the locath is no longer to be perceived. Such a inversible change is too often only a temporary improvement, to be followed perhaps in a few hours, by a return of all the worst symptoms. If, however, the characteristic odour is not reproduced, and we find that the pulse become fuller and stronger, and the cough less distressing; that the tongue legits to clean and the appetite to return, we may venture to hope that the inversible change may be maintained. According to Kolsts, when the gauginess results from the presence of a feesign body in the lung the prospect is less desperate than in other cases, but this can only be if the unitating substance is expelled.

Treatment.—In the treatment of this distressing disease we want do our best to support the strength of the child and anake energetic employ-

ment of disinfecting and stimulating inhalations.

The chamber should, if possible, be large, and must be kept therespidy ventilated. It should be continually disinfected by spraying with carbolic acid or Condy's fluid, and pure of either disinfectant should stand about the room.

The child should be made frequently to inhale vapours or sprays impregnated with oil of turpentine (**0, xx.-xxx.) to the past of boding subst, or with creasons or earbolic acid (**0, xx.-xx.) to the pint.) Glycerine of carbolic acid may be also given internally, in one or two drop down, according to the age of the child; and Trumbe recommends the salicylate of sola or the scetate of lead. The sulpho-carbolates are said to be of service in

removing fetor, if given freely. The sulpho-carbolate of soch may be given to a child of four years old in doses of four grains every six hours. Bucatory recommends the fincture of encalyptus for the same purpose, and states that the remedy not only reduces the offensive odour of the breath and spatum, but relieves the violence of the cough. A child of four years

old may take fire or six drops three times a day.

Quinine and the mineral acids are preferred by some; and it is important that the former, if employed, should be given in full doses. For each dose the quantity may be calculated at one grain and a half for each year of the child's age; and this may be given three or four times in the twentyfew hours. Ammonia and back have also their advocates. The bowels must be kept regular. If they are confined a dose of custor-oil will usually relieve the constitution.

Alsoholic stimulants are always required. For an infant white wine whey, for an older child the brandy-and-egg mixture should be given at

frequent intervals.

With regard to diet: an infant should be restricted to milk diluted with burley-water and guarded with a few drops of the samebarated solution of line (twenty drops to the teacupful). An older child can take milk, strong berlies pounded most, eggs, etc., in quantities regulated according to his age and powers of dignetion. In this, as in all other cases where the dehility is great, we must remember that the dignetion shares in the general weakness; and must be careful not to overload the stomach or fill the blood with unassimilable nutriment in our anxiety to sustain the strength and obviate death from asthenia.

CHAPTER XIL

PULMONABY PHTHISIK.

Personary pithisis is a common disease in the child. The term signifies ulceration of the pulmonary tissue. The affection is therefore perfectly distinct from acute tuberculosis. The latter is a general disease in which the lungs if they are involved at all, are affected in common with most other organs of the body, and if they undergo disintegration break down as a consequence of inflammatory changes due only indirectly to the presence of the grey granulation. Palmonary phthisis, even when the consequence of a general dysersals, is especially a long disease, which if it run its course unchecked passes on necessarily to softening and excession.

Futhisis may be acute or chronic. The scate form is not unconcern a young subjects, and consists in rapid hepatisation and caseous infiltration of the lungs, with equally rapid softening and disintegration. This form of the disease is to be distinguished from acute pulmonary tubercaloss.

although it may be combined with it.

Chronic phthicis is seen in two principal forms, viz., chronic tubercular phthicis and enterthal or pneumonic phthicis. These varieties differ marke-fly in their mode of origin, their course, and often in their termination, and are, no doubt, the consequence of very distinct pathological conditions.

Conserior. — Most cases of pulmonary phthics are dependent upon a general predisposition, which may be hereditary or acquired. The child may be born into a consumptive family and thus inherit a constitutional delicacy which renders have especially sensitive to morbific influences. On the other hand, although without any family tendency to this form of the cases, the patient may yet, through the agency of special disease, saided perhaps by invanitary surroundings, acquire a pulmonary weakness which scopes or later, under suitable conditions, develops pitthicical charges in

the lung.

The inherited disease may consist of either form of plathisis; and either variety may be acquired by a child in whose family no tendency to consumption can be discovered. Even chronic tubercular plathists although in the majority of cases no doubt the consequence of an inherited predisposition, may be excited by infective agency through the pension of softening cheesy tratter at some part of the body. A special palmounty delivery is often the consequence of wholeping-cough and measles. These diseases are very limble to be complicated by catagorial presumeria and it often happens that after complexence the absorption of the canodicating material is incomplete. Consequently a caseous lump is left at some part of the bung, which after remaining inactive for a shorter or lenger penal begins at length to soften and set up irritation in its neighbourhood. But even if perfect absorption of the consolidating material take place, a certain susceptibility may be left after the subsidience of the inflammation, as that the child becomes attacked again and again by obstinate catagories. These

catarries in faceurable subjects are apt to lead to callular infiltration of the broughtst walls and gradual invasion of the alread. In this way a catarried

or pasumonic phthisis is eventually developed.

In children of serodulous tendencies there is very commonly a pulmonary weakness. The child is very subject to enturins, and he has also the proseness inseparable from his strumous constitution to expel proliferation and enseation of cellular elements. In such a subject a catarrhal philipsis is readily set up. So, also, in subjects especially prone to tubercular formation the long prolitation may induce this variety of publiclosical change. In the present day, owing to the discovery by Kock of the tuberche bacilles, there is a tendency to look upon all forms of phthicis as due to infective agency. According to this view, the varieus pathological conditions would be all tubercular, as the bacillus appears in most cases to be discoverable either in the spatters or the pulmonary tissue of the part affected. The question, however, is as yet far from settled, and broking at the wide differences in the clinical characters of the several forms of pulmanary phthisis, it seems elements to consider these discusses from a clinical rather than from an automical point of view.

The causes which tend to originate a pulmenary weakness or encourage a minral delicacy of long are all those which in any way help to lower natrition and degrees the natural vigour of the body. In childhood—a period of life in which nutrition is only maintained at a healthy standard by the continual influx of notritive material—any interference with the digestive or maintained processes has an exceptional influence in dominishing resisting power. It is for this reason, probably, that in unreholescence and more of freing slight febrilo attacks, such as are incidental to many of the less serious allments of early life, may start an enfecting process which ultimately determines plathshoal changes. In this way unsucrable food and close rooms, a damp residence, mental depression from unkind treatment, over-exercise of the immuture brain, and any other like agency

may have an influence in exciting the mischief in the lung.

Certain diseases have an undoubted tendency to be followed by phthisis. On this account measles and whooping-cough are justly dreaded for the injurious influence they are known to exercise upon scrafulous and weakly subjects. These affections not only encourage a special long scalaness, but also by promoting enlargement and execution of the lynephatic glands, may set up a focus of infection by which, through the medium of the blood vessels or lymphatics, secondary inflammatory processes of a more or less neute character may be excited in the long. Scarlation, too, is sometimes a cause of phthisis, acting by similar means; suppress may induce the pulmonary mischief through absorption of infective material from the pieurs; and the disease hat uncommonly arises in rhiddren who suffer from accordatous pints and old-standing rates of bone. The influence of catarrhal presumonia in inducing the disease has been already referred to.

Since the discovery of the bacilles the question of the infectiveness of phthisis from person to person has again assumed considerable prominence. The presence of bacille has been discovered in the air supered by consemptive patients; and if this microphyte be indeed the agent by which the infection is conveyed, it would seem to follow as a logical conclusion that the discase must be continually communicated by this means. Whether, however, it be that a predisposition of rare intensity is required for the ready reception and development of the bacilles, or that the importance of this organism as an infecting agent has been overestimated,

the fact remains that the disease is practically not communicable by this means.

Morbid Anatomy.-In all cases of pulmonary phthicis the lungs after death are found to be more or less consolidated by a cheesy-looking selestance which is in various stages of softening and disorganization. Whether the disease has begun by a chronic process of inherculisation or has originated in a cutarrhal pneumonia and spithshal accumulation in the alreoli, the degeneration of the morbid material gives rise to caseous solidification of very similar character. Even when the primary pathological change consists in a chrome formation of grey tubersle in the lung tisms, a secondary entarrial purumonia is usually set up scener or later; and the resulting rancous infiltration materially contributes to the enlargement of the area of solidification. Again, when the form of phthisis is originally catarrial, softening of the cheesy material which infilirates the lung may be a source of infection. By this morns a secondary formation of miliary tubercle is excited, at first in the immediate neighbourhood of the affected region, afterwards more generally over both the langs. Consequently, in most cases, the pathological changes are not simple, but tend to complicate one another, so that the large is at the same time the seat of different marked processes. We aften find grey or vellor granulations combined with masses of yellow infiltration of various extent. In these masses the tissue is soft and friable, and on section is found to be dryish, of a straw or grey colour, and streaked or spotted with black pigment. The surface is commonly marked with intersecting lines which indicate the position of the interiobular sents. At the boolers of the consolidated region is usually a zone of reddish-grey glutinous infiltration Often many of these cuscous masses are seen scattered over the lung. the pulmonary tissue between them being ordenatous or congested and partially collapsed.

If the phthisis has reached an advanced stage, cavities from breaking down of the comolidating material are usually found. Careties are not ancommon in the young subject, and are probably mot with less frequently in the child than in the adult, only because the disease in early life often proves fatal from a secondary tehercolosis or other exhausting complication before the stage of excavation has been arrived at. When softening begins, it always occurs first in the centre of the caseeus muss. The dead shrunken cells and molecular debris lying around them are leasened by the imbiliation of waters fluid, and the cheesy material is converted into a soft purulent pulp. The wall of the broachus, which lies in the centre of the nodule, then becomes perforated, and the sheesy matter is coughed up learning a ragged execution. The softening may attack the cheery mission generally through the long, as happens in the more made form of the disease; or may begin in those situated in the upper part of the lang. and thus pass gradually from apex to base. The expectorated matter in these cases contains particles of elastic tissue and shrunken cells, and

In cases where the disease consists principally of the grey and yellow military nodules, these bodies are seen grouped in chasters and uses or less reasely aggregated. They are more numerous towards the spen; but sometimes the whole of both lungs may be seen to be stuffed with them; and in some parts, in addition, there may be softening chasts smore more or less disintegrated. In most cases the lungs are also bound to be the sent of increased fibrosis, and some dilutation of the smaller sinteless.

often under the microscope exhibits bacilli in large quantities.

run be perceived.

The real tubercular phthisis attacks both lungs simultaneously. The estarcial form begins in one lung, and it is not until signs of softening are noticed that the opposite lung becomes affected. This softening of the cheesy setter in the affected lung is often a signal for a more general diffusion of the disease. The apex of the opposite lung is attacked, and casestion and softening occur in the glands of Peyer's patches and in the softensy follocies in the neighbourhood of the diseaseal talve, giving rise

eventually to elecention of the bowels.

On microscopical examination of the lungs, the sent of pulmonary phthinia, various histological changes are discovered. According to Dr. T. Henry Green, these are mainly of four kinds: 1st, a filling of the pulmonary vasicles with fibrinous exadation and lencocytes; 2d, an accumulation of large epithelial cells within the absoli; 3d, an infiltration and thickening of the walls of the air-vesteles, and often also of the terminal brough with small cells; 4th, an increase of the interlobular connective tissue. These various changes occur in varying degrees in different cases, but all of them are said to be present in the majority of instances, although in very different proportions.

In a practical treatise it is unnecessary to enter minutely into the various pathological changes which combine to make up a case of pulmonary pathists; and the reader is referred to the standard works on pathological anatomy for fuller information upon this subject. The preceding sketch is necessarily brief and imperfect; but some reference to the conditions which give rise to the signs and symptoms about to be

enumerated was indepensable.

The acute and chronic forms of pulmonary phthisis will be described separately.

ACUTE PETRINS.

Acute phthisis, or "galloping consumption," is not uncommon in early life. The term is sometimes used to include cases of acute pulmonary tubercalous. It is, however, more properly restricted to cases of rapid caturally pseumonia where, as a result of an acute influentiatory process, the air-cells become stuffed with epithelial elements which undergo rapid ossestion, and the solidated tissue quickly breaks down into cavities. The constitution is at air-celloular and is generally diffused over the lungs. Softening takes place pretty equally in all parts at the same time, so that the lung becomes destroyed by sinuous and busrowing cavities separated by reblened and oslematous tissue; much purcleut matter is formed, and the living membrane of the air-passages is excessively red. In this form miliary tubercle may occur as a complication, but its appearance is comparatively rare, for the disease is essentially presumonic in its nature.

Acute phtians generally occurs in a child who has been reduced in health by previous illness or bad hygienic conditions, and is sometimes seen to attack one already the subject of a chronic consolidation which had given rise to but few symptoms. The age of patients so affected is usually

fro or six years and upwards.

Symptoms.—The general features of the illness are those of an acute stack of pneumonia combined with very great severity of the general symptoms. At first the child usually complains of a pain in the side. This may come on quite suddenly during some slight muscular exercise. Thus, in a little gurl under my cure, the child first complained while she was beging her mother to make a bod. The pain may subside after a time, or be complained of occasionally all through the illness. Cough comes on at

the same time with the pain, and the child is noticed to be very feveral at night. In older children the cough is usually accompanied by experiention. The spatum is at first which and acroled, but no the large begin to break down it becomes yellow or greenish and summulated, and is found to contain large quantities of yellow elastic tissue. The number of bucill found in the spotum is not, however, always very great. In some cases under my care these organisms were found in much less quantities than in cases of phthis is which run a more chronic course.

Dyspaces is always an early symptom; the appetite is very poor, thing is great, the tengue is furred, the bowels are relaxed or confined, and the child wastes with extreme rapidity. In some cases swelling of the abdomen is noticed, and the liver may be found to be enlarged from faity infiltration.

The fever is often very high. It is not uncommon to find that the temperature rises to 104° or 105° at night, sinking to 100° or 101° in the ascening. It soon begins to be accompanied by copious sweats, and the night-clothes may be drenched by the profuseness of the secretion.

Examination of the class discovers principally the signs of broadopactuacia. Dulness is noticed, availly beginning at the upper part of the
lang. At the cases this may be limited to one sade of the class, but the
opposite lang becomes very quickly affected. That first attacked, however, generally maintains its precedence and keeps in advance of its fellow
throughout the course of the chasas. The diminution of resonance involves more and more of the area of the lung, and is accompanied by
toruchial or blowing breathing which may be more or less covered by a
copous, course, subscreptant rhoughus. This rile is usually heard one
the whole extent of both impiration and expiration, and is very large not
metallic in quality. In spots here and there exceens a suppression may be
though after a time; and the rhoughus in such places is larger and ners
ingung than elsewhere. If a cavity of some size form, the breath-sounds
may be supplieric. Vocal resonance is usually stronger than natural, and
may be broughophomic in places.

The above are the physical signs in a typical case of the disease; but it must be confessed that in many cases, especially in the younger children, cavities may form in the long without any sign of their existence being noticed on examination of the chest. In such cases the signs are cheffy those of estarriad pneumonia; but the duliness begins at the upper part of the chest instead of the lower, and the rheachus is usually larger and near ringing and metallic than in an ordinary case of broacho-pneumonia. The child in all cases looks excessively largered and ill. The wasting is very mip of; in a surprisingly short time the temples and checks get holles, and the field seems to fall away from the body. Often more or less general orders is noticed, although an examination of the urine may discover no

trace of albumon.

A little girl, aged thirteen years, was said to have been healthy until the age of six years when she had an attack of measles followed very shortly by scarlation. Enlarged glands formed in her neck soon afterwards and some of these suppurated. Since that time the girl had been delicate but had never coughed until ten months before coming under observables. For four months her cough had been very distressing, and she had safered much from pain in the side. She had been very feverish, had smeated productly at night, and had wasted graduely.

The girl was much emariated and very weak. She had a distressed large and expression. The cervical glands were enlarged, and her neck how many source resulting from former supportations. On examination of the client the chricles were seen to be very prominent from retraction of the mices of the langs. There was much diminstion of resonance over the whole of the right side and at the upper third on the left; and much course, motalis, bubbling thouchus was heard over the whole of both sides. The requiration was envernous towards each open, and bronchial below. hour was enlarged, reaching nearly to the navel.

The girl complained greatly of dyspuces and sweated freely at night. Her cough was troublesome, and she expectorated unminular sputs. She and the sputs had never contained blood. Her face and feet were orden-atons, and her trine contained albumen. There was no diarrhosa.

During the first few days the girl's temperature was 101" at night, sinking to the normal level in the morning. It then became subnormal both morning and evening, and the patient died on the twelfth day after admissize into the hospital. On inspection of the body cavities were found at the upper part of each lung, and other small collections of purchast matter were scattered over both organs. The pulmousry tissue generally was red, and easily broke down under the flager. At the base of the right lung a marked movemen in the fibrous tissue was noticed, and the bronchial tubes in that situation were somewhat dilated. No grey or yellow tubercles were to be seen. The pleanal surfaces were firmly adherent. The kidneys appeared to be healthy.

Beath is preceded in these cases by great prostration, restlessness, and insbility to sleep, complete anorexia, a glossy eroded tongue, and sopies upon the teeth and lips. The duration of the illness is comparatively short, and death usually takes place at the end of five or six mouths.

Disgussia. The discuse with which sente phthisis is most liable to be confounded is acute pulmonary tuberculosis. In the beginning, however, the affection may be mistaken for croupous passanous. The sublenbraset, accompanied by pain in the side, cough, and high faver, presents sometimes a close resemblance to an ordinary case of inflammation of the long. Still the temperature does not maintain the some little varying elevation in acute phthisis as in croupous pneumonia, and the course of the illness in the two cases is very different. Instead of the suitien crisis. which occurs in prostruction about the end of the first week, the eruptions persist and grow more and more severe, the signs of consolidation contime to extend themselves, the opposite bung is quickly affected, and very soon elastic tissue, and perhaps bucilli, can be discovered in the apartmus.

From sente pulmonary telegroulosis the disease is distinguished by its more abrupt onset, the early signs of pulmonary consolidation, and the alsence of indications pointing to the implication of other oxyities of the lody. Comparatively few cases of pulmonary interculous in the child terminate without some signs of intracratial mischief; but when acute phthisis is uncomplicated by tubereniosis these are absent. The twodiseases are, however, sometimes present together. The existence of the tebercular mulady is then made evident sooner or later by the onset of correlations, squinting, rigidity of joints, and other symptons pointing to mentagities.

Proposit.—Acute phthisis is a very fatal disease, and the prognosis is consequently very unfavourable. The patients do not invariably die, but instances of recovery are exceptionally rare. In any case the best we can hope for is a remission in the acuteness of the symptoms. Sometimes the disease, its first force expended, lower a part of its energy and becomes more measured and tranquil in its course. It may even settle down into

as ordinary case of chronic phthisis. It is impossible in any individual instance to anticipate such a result; but a diminution in the pyreos, if combined with an improvement in the appetite and a brighter expression in the face of the child, is a sign of good onen. A decrease in the feer, if unaccompanied by other signs of improvement, so far from being a firourable symptom is one to be regarded with great amiety; and it, under such circumstances, the temperature fall to a subnormal level it may be an indication that the end is not far off.

The treatment of these cases will be considered afterwards.

CHRONIC PULMONABLY PHTHISIS.

The two principal forms in which chronic pulmonary pichics weally presents itself in the child have well-marked and very distinctive class actors. Chronic catarrial or pasumonic phthosis, which begins as a slewly forming consolidation of one lung, or succeeds to an attack of acute estigthat preumonia from imperfect absorption of the solidifying material has at first the characters of a local disease. It is accompanied by certain sizes and symptoms which indicate the existence of irritation within the lang | but as a rule the general health is comparatively little interfered with autrition is fairly performed, and the appearance of the child gives little evidence of serious pulmonary mischief. It is only when softening is set up at the sent of consolidation, and infection of the system follows with secondary deposits in the opposite lung and other parts of the body, that signs occur indicating that the patient is suffering from a general disease. Even when these general symptoms arise, they remain for a long time insignificant as compared with the signs of extensive discuse discovered on examination of the clost. On the other hand, chronic inherester pullisis has completely different characters. From the first-indeed, before my signs of pulmonary irritation have been noticed—there is some fover and wasting, showing general distress of the system; and throughout the whole course of the illness the general symptoms continue sovere cut of all proportion to the actual extent of lung mischief discoverable by the stethoscope. Therefore, whatever opinions may be held with regard to the pathology of these two varieties, they still remain two distinct christ types murked out from one another by very separate and districtive features

Symptons.—The poculiarities in the size and shape of the chest often met with in children of consumptive tendencies are elsewhere referred in (see page 200). It may, however, be remarked that although small large and a narrow elongated chest are often found associated with an inherited pulmonary weakness, phthis is is not confined to such subjects. We shall never be justified in excluding pulmonary phthis is because the child's shoulders are broad and bis chest well proportioned. In the presences form of phthis the eye often detects nothing to raise a suspicion of pritronary mischief. It is the tubercular variety which is most constantly combined with narrow sloping shoulders and flattened ribs.

In both varieties of philasis we find local symptoms significant of pulmonary distress, and general symptoms arising from irritation of the system and impaired nutrition. The severity of the case is monthly very fairly indicated by the degree in which the latter predominate over the former.

In circuic paramonic phthinis the first sign of the disease is usually

cough. The patient may have lately passed through an attack of acute catarrial pneamonia, or may have suffered from neglected pulmounty entarris with gradual implication of the alveols at one apex. In the first case the child recovers his strength but slowly. He continues to rough, often violently; and is more or less feverish at night. After a time, however, the fever embeddes, and the child regains fiesh and a certain proportion of his strength; but he still looks pule and has a frequent lacking cough. In the second-case the disease creeps on insensibly, and at last it is policed that the child coughs, and is pale and easily tired. However the disease may have originated, the symptoms are insignificant as long as the realwarbed deposit in the lung is undergoing no active change. A claid with an multiported mate of caseous matter in his lang may be plump. active, and cheerful; but he is usually rather pale, may complain of pains in the limbs, and is apt to cough a little in the morning or in the day after evertion. On examination of the chest at this period we find slight dulaces with some little increme of resistance at the spex or any other part of the chest on one side. If at the spex, the dainess is best detected at the super-spinous fossa. The breathing is brouchial and some coarse clicks are level with inspiration. The resonance of the voice is also increased. Chaldren with the lung in this condition are very susceptible to chills; and if first seen when the lungs are the sent of a fresh externi, general bubbling may be heard all over the diseased side; and also, but to a less extent, over the opposite lung. When this happens it is difficult to form a correct opinion as to the actual amount of disease present in the chast; and it is well to correct our first impressions by the results of a subsequent examination.

At this stage of the illness, before soltening has begun, absorption is still possible, and sometimes occurs in young subjects many months after

the first symptoms have been noticed.

When softening begins the general symptoms become more pronomiced. There is fever, the evening temperature rising to 102" or 103"; there is marked pollor, although the cheeks become flushed towards night; and the expression is distressed. Often the stald sweats towards the morning. These symptoms indicate an infection of the system by absorption from the softening area. The disease from being local is becoming general; and the consequences are quickly seen in the interference with nutrition which never fails to enone. The child begins to lese flesh and strength; his spirits fail; his appetite and digestion become poor, and he shows all the symptoms of suffering. The course of the disease is almost always unequal. Every now and again on improvement is seen to take place. By careful nursing and treatment the fever dimintakes or subsides; the nutrition improves; and fiesh and strength are regulard. It is not uncommon to see a child fairly plump and to all appearance in tolerable health, who yet has a cavity in one long and signs of consolidation at the opposite apex.

During this stage pains are often complained of in the shoulder of the affected side. They come and go, and seldom continue for long together. The respirations are usually more hurried than in health, but when the child is quiet are not necessarily much conggented. The increased frequency of breathing is a cause of no inconvenience to the potient, and takes after exertion does not give rise to a feeling of dysposus. The rough is frequent and fairly loose. If expecteration occur, the sputum consists of yellowish or greenish muco-purulent matter which under the therescope is found to contain frequents of yellow elastic tissue and

often buelli, the latter perhaps in large quantities. Hemophysis is rusbut does occur in exceptional cases. Children accustomed to a sufficiency of good food sciden have much appetite, and often show a complete diagraf for food. In hospital patients, however, the appetite may sensin loon; and a child with cavities in his burgs and a high temperature may be seen to enjoy his meals almost as if he were well. The digration is usually impaired, and, probably from the quantity of acrid manus which is awallowed, vomiting is not uncommon. Diarrhow, too, is a familiar symptom. In cases where the appetite is preserved matrition may seen for a time to go on fairly well in spite of the pyrevia. Hospital petients thin gain weight after sulmission, although the evening temperature may stead

every night at 102 or 103%.

The physical signs in the stage of softening consist of an increase in the dulness, for the irritation set up by the changes occurring at the diseased spot induces an extension of the estarrial process; and an alternion in the quality of the breathing, which becomes blowing or even cavemous. It is accompanied by a moist erackling rhonchus which, as a cavity forms, becomes very metallic and ringing. At this time the apex of the opposite long should always be carefully examined. In many costs slight less of resenance with high-pitched or faintly broading breathing will be found at the supra-spinous fosse, and a click or dry crackle can be heard at the end of inspiration. It is at this period of the illness that diarrhous is especially frequest; and if essention and softening occur in the solitary failedead the intestine and the glands of Peyer's patches, the stools may soon begin to present the characters peculiar to alceration of the museus membrane (see page 662). If this complication occur, the child wrates rapidly and becomes laggard and hollow-eyed. He sweats profusely at night; is redless; refuses food; and quickle dies with all the symptoms of prostration. The temperature in these cases seldom reaches a high elevation. It is

mently between 101° and 102° in the evening.

Children who are the subjects of a chronic casesum consolidation of the long often suffer from attacks of secondary cataryhal pneumonia. In these attacks the boundaries of the original moscloid are not always extended It is common to find the chief force of the complication expended upon a different part of the lang. Thus, a child with signs of consolidation at the apex of the right lung is attacked with caturbal passmoons. A loud cupstating rhoughus is beard all over both sides of the elect, and at the right posterior base there is some duliness with tabular breathing and a metalic quality of the rhenches. The basic dulness becomes gradually more prenounced, and at this spot the respiration gets to be cavernous or even any phoris, and the rhoneless to be excessively metallic and ringing. The road resonance is broughophonic. The temperature rises to 103" or 104" in the evening. After two or three weeks the temperature begins to full and the dulness to diminish; the hard metallic rhonchus becomes looser and more hubbling; the covernous breathing is less intense at the base, and the guigling is less large and metallic. The child begins to regain feels, and when lost sight of, although looking primp and well, has still the old mississ at the spex, and the signs of consolidation with cavernous breathing still pursoid at the base of the lung. In such a case, which is no imaginary one, the child recovers from his intercurrent attack with two consolidations instead of one. The estarrhal pneumonia has given rise to a cheesy deposit at the base of the lung and dilatation of the brought. This, of course, if the patient be placed under farounable conditions, may possibly be recovered from ; but the probable consequence of such a condition, if time he allowed

for the change, is the development of a fibroid overgrowth at the spot and

permanent bestrehicetosis.

An attack of bronche-passimonia is often a came of death, or the patient dies were out with fever, diarrhou, cough, and want of sleep. In not a few cases a secondary tuberculosis supervenes, or the case may be complicated by a more chronic and less general formation of military tubercle confined to the lungs. These are called cases of tuberculo-paramone phthisis.

CHRONIC TURESCULAR PHTHISIS.

In this form of the disease the illness begins in a very gradual manner, and the special symptoms arising from the lungs are preceded by others. showing the existence of general disorder of health. The child is noticed to be larguid and listless. He looks pullid; has little appetite; complains of pains in his legs, and is disinclined for his usual games. He is often found to finds at night and his hands are noticed to be hot. After these samptoms have continued for several weeks the patient begins to have a alight cough. This at first is merely a about occasional mack which excites little attention; lent after a time it becomes more frequent and amoving. The course of the illness in this variety is less irregular than in that previonly described; but still the downward progress is more rapid at some times than at others. The temperature, although it undergoes considerable variations, rarely stands at a normal level in the evening; but unless the disease be complicated with estarrhal presmonin the pyrexia is not high and seldom reaches 102". Wasting is usually persistent; but if the patient has been exposed to privation, the comforts of a hospital may innice a temporary improvement in natrition, although the pyrexia contimes and the other symptoms remain unaltered. Cough for a long time may be a very insignificant symptom and, even with signs of extensive ciscuso of the lungs, may be almost about. The breathing is often rapid, ming to thirty or forty in the minute. Increwed lucry of breathing, according to Niemeyer, may be one of the earliest local symptoms, occurring before any physical signs of the discuss can be discovered in the their. The directive or was are weak and irritable. Vennting is common and in often excited by cough. Purging is also a frequent symptom. many mans examination of the helly discovers fatty enlargement of the liver, and ordens is often noticed in the limbs. Death may occur from general weakness, from cataerhal pneumonis, or from the extension of the tubercular formation to other parts.

The physical signs of inherentar phthisis appear late, and at first are curiously insignificant when compared with the severity of the general symptoms. We find a child pale and thin, with a depressed, unblessed look. The borders of his mouth have a faint blue test; he parts after exertion and coughs occasionally a short hard lack. We are told that he has been faling for several months; that he cats scarcely anything; has lost all his spirits, and gets flushed and feverish at right. On examination of his cleat we discover merely some slight want of resonance at the spires of the lungs with weak, hursh breathing. A faint dry enackle of rhouchus is carght at the end of inspiration, and is brought out more clearly by a cough. The chest is clongated, with a narrow untero-posterior diameter, but the lungs although naturally small, appear healthy except for the

signs which know been mentioned.

As the disease progresses the physical phenomena become more pro-

accuraced. They are always discoverable at both spices, although news marked on one side than on the other. Usually the area of dulares is increased by a pneumonic process set up in the lung; and marked dulares with blowing breathing and the ordinary signs of consolidation are discovered. The disease then after a time presents much the same characters to physical examination as those referred to in describing the estardal suriety of phthisis. In exceptional cases diseasunisation goes on without the aid of a pneumonic process. We then find the feeble breath-sound to become gradually blowing, and eventually cavernous sounds are discovered at the apex.

Tubercular and tabercule-presumonic forms of phthis are often not with in scrofulous children who suffer from long-standing disease of the joints. In such cases the articular affection has probably been the original cause of the palmonary mischief; and by the continual irritation to which it gives rise may influence the condition of the patient very unfavorably. In these cases it is often advisable to remove the diseased joint, even although the amount of disease in the long is too extensive to allow of lasting improvement. Life may be considerably prolonged and the confort

of the patient greatly promoted by this step.

A little girl, aged eight years, was a patient in the East London Chil dren's Hospital under the care of my colleague, Mr. H. W. Picker. The girl's father had died of consumption, and she herself had been suffered form strumous discuse of the right astrogalus for six months. The child was much emounted and very answer and feeble. Her skin was hardrand dry, her cyclids were awollen; and the cervical and inguinal giants of each side could be felt to be enlarged. The finger ends were somewhat thickened. There was no albunces in the arine. The temperature was usually normal in the morning, but would rise towards night to between 101 and 103. At Mr. Parker's request I assumed the cirbl's chest, and found the signs of a cavity at the upper part of the right long, with evidence of considerable consolidation over the lower lobes. The left lung was also diseased, although to a less extent. A moist eracking rhoudest was heard over both sides of the chest. Although this child was evidently suffering from tubercule-passimonic phthisis, and the pulmonary mistired was very extensive, the system was obviously so greatly distressed by the irritation and pain of the diseased ankle, that Mr. Parker decided upon amputating the foot. After the operation the temperature, which on the previous evening had been 101.6°, fell to 98° at 6.30 r. st., and remained for the racet part at a porned level while the child remained in the hospital. The clicking rhenchus also ceased to be board in the chest; the face lost its distressed look; and autrition improved in a surprising master, the patient gaining between six and seven pounds in three seeks. Unkeburstely, after the shald left the hospital and returned to her own poor bone, the improvement was not maintained, and in a few months we heard that she was dead. Still the remarkably good results which followed the removal of the diseased joint are very instructive, and fully justified the operation.

The majority of cases of pulmonary phthisis are seen in children of six or seven years and upwards; but younger children and even infants are subject to the discuss. In very young patients alceration of the larges not always easy to recognise. Serious discuss may be present without giving rise to any very characteristic symptoms. The child is no doubt feels and wasted, but loss of flesh and strongth are common in very young skildern with almost any form of allness. Cough may be tailing and the benuth-

ing not obviously interfered with. Even a physical examination of the chest may yield us little information, for over the site of a eavity the percussion sets may be merely tubular (tyropanitic) and the headling broughts) with must clicking sounds. Moreover, the occurrence of softening in a cheery pulmonary deposit is usually a signal for the occurrence of accordary deposits elsewhere; and sheesy and ulcerating intestinal glands with the consequent distributa may completely draw away the attention from the large. When pulmonary phthisis occurs in the young child, it runs a comparatively supple course. It is in the large majority of cases primarily of the external form, and is most commonly the consequence of an attack of sub-armie bronche-parameteria succeeding to measles or who oping-cough.

Disposis.—In the diagnosis of pulmonary phthisis is the child an accurate account of the beganning and course of the illness is very important. At the same time it is necessary to remember that a history of cough with persisons loss of flesh is no sufficient proof that the child is suffering from pilmonary consumption. Scrofulous children and others with a like susceptibility to child, are very subject to attacks of pulmonary and intestinal cuturit. Such patients may be troubled with continual cough, and lose firsh steadily without any organic mischief being set up in the lung. They may even be fewerish at the cuset of every new chill without this additional symptom being evidence of phthisis. No doubt the condition of such children is one of danger, for they often eventually develop pulmonary discuse; but until this has actually taken place, ordinary precuntions for the avoidance of chills will quickly cause the symptoms to disappear.

Even if examination of the chest discovers slight dulness at the suprasumous force of one sale with a high-pitched or faintly bronchial quality of breathing, these signs are not necessarily due to phthesical consolidation. Weakly children are very liable to temporary colleges at the spices of the large from insufficient expansion. In such cases the morbid signs are limited strictly to one aspect of the chest—the back or the front—and can often be made to disappear if the child is instructed to take two or

three full inspirations in rapid succession.

In young subjects consolidation, as a result of estarrhal pagements, may be met with at all purts of the lung. It is seen as often at the base as at the ages, both in front and behind. In all cases, therefore, it should be made a rule to search the chest completely before we allow ourselves to ticlede the existence of a cheesy deposit. If this he done quetly and gently, as directed elsewhere (see page 13), the examination can usually be carried to a successful issue. In infants, as has been already remarked, phthicis may be present although but few symptoms of the disease have been noticed. The cough may be insignificant, the breathing quiet, and a someones of the bowels of some standing may seem to explain sufficiently the pallor and wasting of the body and the distressed expression of the child's face. If, however, at the same time the evening temperature is higher than natural, the symptom is a suspicious one; and if the state of the stools indicates the existence of ulceration of mucous membrane (see page 662), we must remember that this condition is often dependent upon fatteric pulmanary mischief. In every case the physicism, if he do his tury, will take nothing for granted, but will make systematic examination al all the organs of the body.

A distinction between the enterrhal and tubercular forms of phthisis is really made by comparing in each case the local signs with the general symptoms of the discuss. Catarrial phthisis, even whose it begins at the spea by slow extension of the enterrhal process to the pulmonary alvedt, produces comparatively little impairment of the general nutrition of the body. The patient coughs and is a little feverish at night; but his appetite is usually good; his strength is little impaired; and he retains a far amount of flesh. Even when the progress of the disease has led to entesive consolidation of the lung, the marked contrast between the militarof the general symptoms and the severity of the local signs discovered by physical examination, is sufficient to reveal the nature of the pulseoury mischief. In chronic tubercests pithissis the general symptoms are scope from the first. The child is puls and thin, feverish and langual, for some time before he is noticed to cough; and it is still some time longer before examination of the chest discovers any positive indication that the large are the seat of pathological change. Moreover in examinal pithisis, untisoftening begins in the deposit, the discase is confined to one larg. In tubercular pithisis the physical agms, when they do present themselves

are discounted at both spices.

On account of the frequency with which secondary attacks of sub-accepestarrint preumonia complicate cases of old consolidation, diluted branchi are often present. These give rise to all the signs characteristic of excesstion; smil it is very important to satisfy ourselves as to the nature of the pathological condition. Diluted becards are most common in the child at the base of the lung, while cavities are more frequently sented nearer to the apex. Therefore the situation of the signs at the base, although he na mesms conclusive evidence, points rather to broughtectuses than to a vortice Again, the general symptoms are of great importance. Diluted bratein, unless occurring as a stronic condition in a cross of fibroid infunction of the long, are not with towards the cod of an attack of broucho-powersenia. If then we find that, with the physical signs of a pulmounty cavity the general condition of the child is improving; that the temperature shows signs of falling; the appetite improves, and the flesh and strength begin to return, the evidence is strong that the signs are not the consequence of ulcerative destruction of lung. Moreover, much assistance is to be derived from a microscopical examination of the sputam, where this can be obtained. In pulmousry alteration accoust fibers of sellow clustic tisms will be seen in the muco-pas comited or expectorated; in case of breachiectasis these will be absent. Lastly the progress of the signs will female corroborative eridence. Carities land to grow larger, dilated broads to contract. If, therefore, while the general symptoms retain stationary, the area over which the cavernous signs are board is found to extend itself, we cannot but conclude that disorganisation of Img is advancing; while it with general improvement, the local signs diminish in intensity, our spinion that these are due to dilutation of brought receives additional confirmation.

The distriction between pulmonary pirtinsis and fibroid industries of

the lung is considered elsewhere (see page 478).

Empyona is often conformed with phthics; and there is no dealt that the general appearance of a child the subject of old-standing parallel efficient is very like that of a consumptive potient. There may be the sums factic, the same emaciation and the same weakness. In each one the child is irritable and restless with a landing cough, some distures of breath, a poor appetite, and a feeble digestion. On examination of the class in each case we find dalness, often extensive, with periaps into covernous breathing. But the history of the illness is very different in the two discuses. In pleurisy it begins with pain in the side followed after an interval by cough; the dulness is complete with extreme sense of resistance; it occupies both the front and back of the class, unless the empyema be localisted; and reaches down to the extreme base. Moreover, the discuss is strictly limited to one long, the other being healthy; and sight of pressure are noticed; the affected side is expanded; the interceptal spaces are less believed; and the beart's apex is displaced. On the other hand, in a case of pulseonery pithius sufficiently extensive to simulate a pleatritic efficient, the opposite long will certainly show signs of lineass. There will be no displacement of the heart or bulging of the side; the dalmess will not be complete; the resistance to precision will not be greatly exaggerated, if no great excess of fibroid toons is present; and the breatle-counds will be accompanied by a large-sized metallic purgling risonchus. In either case the usual resonance will probably be breatle-phonic; but in empyone it often has an apophonic quality.

Catarrial phthesis in the young subject is very liable to be complicated by taborculous as a result of infection of the system by softening cheesy matter. The occurrence of tuberculous is sometimes indicated by a rise of temperature and an increase in the supidity of the breathing without any excussion of the physical signs. Great irritability of the stomach and howels is often induced; the child venits repeatedly, and the bowels are relaxed. Usually in these cases signs of intracramial irritation become quickly manufested; and convulsions occur followed by equating phases, rigidity of joints, and other well-known signs of tubercular meningitis.

Programs. - The gravity of the case in the two forms of pulmonary pathicis is very different. In an early stage of estarrhol phthisis we may resentably loops, by putting the patient rate the less senitury conditions, to effect removal of the esseous consolidation. Absorption of a chronic solidification left after an attack of external presentation may be effected in the young subject after the lapse of many mouths; and I have often som cases in which signs of pnoumonic phthisis occurring at the spen, from along extension of a cutarris to the alreoli, have disappeared when the child has been sent to writer in a smirable climate. Indeed, if we can protect the patient from fresh chills, and secure for him an adequate supply of perfectly pure air-such conditions with good and sufficient food will do much to help him on his way to recovery. It is difficult to my at what period of time it becomes hopoless to expect absorption of a cherry deposit. I believe that so long as no active change has taken pisceat the affected spot this fortunate termination to the case is still possible if the patient be a wind.

When a secondary enterrial passimonia occurs in a case of positivities the child will not accessfully die a united, the acute stack usually time a sub-acute course and is eventually recovered from. Still the future properts of the child are sensibly dark-and by the addition usually made to the amount of previously existing disease by the passage of the con-

phonon.

Cases of element tubercular phthisis always go on from had to worse; for although by a suitable elimate and the careful necessaries of chills, attacks of entarrival passumonia may be prevented, the normal course of the

Intervalse disease is little affected by the treatment.

In all cases, signs of very unfavourable import are :—Great rapidity of beatining, and signs of firefity; a high evening temporature; a red glaced targue, with or without great disturbance of the stonach; disturbes. The acrobibus constitution or a strong hereditary predisposition to phthis is as almost in the case of the atmost gravity. As far as is at present known, the quantity of the bacilli discovered in the spata furnishes little tolorustion of importance in progressis; for these organisms are not found to be necessarily most numerous in cases where the discount processes are most active.

Treatment.—Caildren been into families in which there is a consumptive tendency require special care in their bringing up; and over anaable means should be adopted to counternet their unfortunate prolingoution. Infants should, if possible, he suckled by a healthy wet-nurse, and every presention should be taken to ensure the parity of the air that breathe. As they grow, they should be accustomed to warm clothing perfect cleanliness, and regularity of meals. Their food should be plain and well selected, avoiding excess of sweets and farmaceous matters, which are so apt to excite and maintain an acid condition of the alimentary qual. Their residence should be, if possible, on a dry soil and in a bracing sir. If this be not practicable, they should at any rate be sent away to a more suitable habitation during the spring and fall of the year-times when the changeable season is so prepatical to delicate children. They should be trained regularly to strengthen their muscles by out-door games; and if the lungs are small, and the chest consequently astron, every means should be resorted to to invigorate the pertonal muscles and expand the cavity of the chest. All forms of catarrh should be attended to with peculiar cure, and the parents should be warned that neglect of such darangements may entail the most serious consequences. By such means a child naturally delicate may, as he grows up, appear to cast off many of the external signs of his constitutional tendency; and although, no doubt, still exceptionally sonsitive to unhealthy influences, may preserve his viguar under conditions which would quickly prove injurious to mother less nowfully mertured. A cold douche in the morning on rising from bed is of great service in these cases; said if the shock is too great under ordinary conditions, the bath will be readily beens when given with the precentions recommended in a previous clapter (see page 17).

If a child with such a tendency be attacked by measies or whoepingcough, the purents about be warned, as the disease subsides, of the disger of neglecting the entarrhal complications which are so hable to occur
in the later stages of these specific malelies. In every case where it is
possible the patient should be sent for his correlescence to a good smooth
air. If estarrhal pneumonia have occurred, the cleaning up of the considdation must be carefully watched. Good ventilation and careful disting
are more than ever necessary; and if absorption appear to flag, necessarshould be taken at once to after the conditions under which the patient is
living, and a change of air should be insisted upon. Aftalies and affailine
appropriate very metal in these cases, and the citrate of iron and quities
any be given with the citrate of potash with great advantage.

In cases of scale pithins energetic measures must be adopted. We should at once take steps to reduce the preexis, which is considerable and to maintain the strength of the patient. Dr. McCall Anderson reconsecution the application of cold, either by lead cloths, Leiter's temperature regulators, or, if these means full, by cold baths. He has found the application to the abdomen of cloths wrung out of see-cold water and frequestly renewed, very useful in lowering the temperature, and speaks highly of Namesyer's combination of digitalis, quinine, and opions. I cannot myself say that I have seen much benefit result from this form of medication, but if thought desirable, half a grain each of the two former drugs may be given with an eighth or tenth of a grain of opions every four hours to a child of ten years old. Of other drugs, large doses of quinite seem to have only a temporary effect, and the subleplates in my lambs have proved wome than

perform as anti-pyretics. They seem to exert little influence upon the temperature, while they irritate the storage and cause names. Our chief resource for reducing the temperature in this as in other forms of febrile

disease, consists in the application of cold.

In order to meintain the strength Dr. Anderson recommends hourly feeling, both day and night, with simple food, such as milk, broths, etc., and gives broadly or other stimulant as seems to be required. The profuse sweats much be controlled by the subcutamenus injection of strepine (gr. $\gamma(x)$). According to this anither the most striking results may be sometimes obmined, and a complete cure occasionally effected by the above means.

In the choose forms of phthials it is also of the utmost importance to improve the nutrition of the body. The absorption of recent deposits and the obsolescence of more chromic consolidations are best promoted by plenty of fresh sir, the availance of chills, and a liberal supply of good find. In order, however, that the child may profit by an abandant-dietary, It is essential that his digestive organs should be maintained in a high state of efficiency. The subjects of pulmonary phthisis resemble in one respect handed infants. Lake them they are liable to repeated attacks of gestrointestural cutturn, which gives rise to indigestion and flatalence. These attacks, by the influence they exercise upon general autrition, may produce very serious consequences. If a child with disordered stomach be fed contirmlly with food which he has no means of digesting, not only is the gastric derangement protracted, but his system is kept in a state of fever which often enhuinates in a fresh attack of postmonia. In any case, such a condition of the body is not calculated to encourage the healthy removal. of morbid products. In all these attacks the dist should be at once allevel. The child should take for food little but milk alkalinised with lime drops and diluted with burley water, weak broth, and dry toast. For medieras he may have an alkali with nex remies to not as an antacid and stomachie. By this means the gastric demogenent will be quickly overcome.

In all cases where the parents are in a position to afford the expense, a charge of climate is of great service. A child who is the subject of an unabsorbed pneumonic deposit, whether this success to an attack of broadle parametris, or have occurred more slowly from neglected entarris, should sharpe the conditions under which he has been living. If he resule at the sm-side, he should be sent infand, if inland, he should be sent to the su-side. A good sea vorage often brings about a complete curv in these cases. The body should be warmly clothed, the bed-room should be large, sirg, and well ventilated, and the child should pass a large part of the day out of doors whenever the weather permits. Cod-liver oil is useful as a help to the treatment, but not as a substitute for it; and iron and quining with

an allow should be prescribed as already recommended.

When softening begins at the sent of mischief and evident constitutional symptoms are observed; the child should be carefully protected from chills, and at the same time be insured a plentiful supply of fresh sin. Mild counter-irritants should be applied to the chest over the discussed spot, sorkus pointing with fincture of indias or subbing in a weak crotw-oil intent. The hypophosphite of line (pr. iij.—r.) is of sensible value in these cases, and will often, when dobility and wominess are complained of, cause in unuscidate improvement in the strength. In other cases aromic is of great service, and may be given with quintee in doses of three to five minims of the aromated solution three times a day. Lately indoferm has been recommended with the object of reducing secretion, moderating from and cough, and arosating the progress of casestion. I have seen benefit

result from half-grain doses of the remody given three times a day with extract of gentian. If the pyrexia is high, it may be reduced by spenging the surface with tepid water; and night-sweats are usually readily controlled by one or two drops of the big atropics at bedtime given in a tea-

specuful of water.

For some years, and especially since the discovery by Koch of the "tubercle bacillus," antisoptic inhabitions have come greatly into favor, At night the air of the bed-room may be impregrated with the funce of far or creasote by Dr. J. B. Lee's "atenua-drought inhaler " processionlin instrument. In the day-time, by means of a perforated metal respirator, such as that devised by Dr. Coghill, of Ventuor, various antisopic substances may be inhaled for an hour at a time more or less frequently may. ing the day. At the Victoria Park Hospital we have been in the labit of using for this purpose a preparation composed of two deachers each of the ethorial tracture of is-line and eurbolic acid, one drawlen of cressots, and one ounce of rectified spirit. Of this ten drops are poured upon a piece of cotton wool and used in the respirator several times in the day. In many cases it is well to use the antiseptic frequently; and if the child will submit to the inconvenience he may be made to wear the respirator all day long. In such a case the antiseptic drops can be renewed every two or three hours. Very good results are often obtained by the help of this method of medication. The violence of the cough is often diminished after the respirator has been worn for a short time, and the spotum is near reality brought away from the lungs. Experteeant mixtures will often large to be given in addition. The disadvantage of all these drops, however, is their unfortunate tendency to cause demargement of the stomach. When made use of it is advisable, if possible, to combine the expectorant with an alkali or a mineral acid. If the cough is hard and light. a few drops of inconceanin wine should be given, with fee or six grains of bi-carbonate of sods, in a draught sweetened with girrerine. Afterwards, when secretion is more copious, four or free drops of and volatile may be combined with a drop or two of lie, morphic, or five to filters drops of puregorie, in glycerine and water. These may be followed by an alialine and area mixture, or a drangit containing permitmit of iron and distate milese acid. Cod-liver cal should always be given if it can be home. When this does not agree, nealting often proven a good substitute, and is usually taken rewilly by a child.

In all cases the state of the dispestive organs must be watched with the greatest rigilance, and any sign of acidity or flatitiones must be a signal for a prompt reconsideration of the distary. Pepsin is often useful given with dilute hydrochloric acid and strychnia, as recommended showhere (see page 641). If a difficulty is found in dispesting starches the hyperplaces (Benger) given with an affail about an hour after neals is of service. In such cases, also, the measures recommended for the breakment of cheenic discription may be adopted with advantage (see page 646).

If the cough excite comoting, this symptom can be generally alloyed by the administration of one directof Fowler's solution of arsense before a most, or half a drop of hig stryclinic often has an equally beneficial action. If assumptivity occur, the child should be kept perfectly quiet in bot, finish should be given to han in small quantities at a time, and he may take at teen to twenty drops of the Equid extract of ergot with mildly spread does of Epsons salts three times a day. If, however, the bowels are necessed, the suline limitive must be quantited. Districts dependent upon this intestinal lesion must be treated as prominended checklers (see page 666).

CHAPTER XIII.

PAROXYSMAL DYSPNICA.

Dorsogn is a symptom frequently met with in early life. The term does not denote merely increased rapidity of breathing. The respiratory movements may be learned without the patient's being sensible of any unusual effort in the act of breathing or of suffering from imperfect airration of the blood. To constitute dyspnonthers must be perceptible distress; and the term may be defined as a coverious embarmament in the performance of

the respiratory function.

Deputos is by no means confined to cases of pulsoomry musched; indeed, in the child, extreme difficulty and labour of breathing, with great livility of face, although possibly produced by disease of the lung, is yet more commonly the consequence of some other cause. The most urgent and sharming form of dysphora is seen in cases of impediment to the presage of air through the glottis. We find it earned to its laglest point in stridulous and membraneus laryngitis, in obstruction of the windpipe by a foreign to by, in extra larguageal pressure from an abscess in the pluryet, and in presence upon the traches or a large broacies by a mass of enlarged girads. Again, intense dyspaces may be found in a case where air penstrades freely into the lungs. If the currulation through the pulmonary records is obstructed, as when a clot is slowly forming in the paintonary artery, the suffering from defizient aeration of blood may assume to an agenty. So, also, in serious disease of the heart dyspaou is a common symptom, for the passage of blood through the lange is impeded by the submitte lesion.

Again, external pressure upon the long will excite a very pronounced feeling of dyspenses. When one lung is enturely comprossed, and the heart distorated by a copious liquid effusion into the picture, dysposes may be urgest and threaten actual suffocation. When the ribs are greatly softused, as in a case of a imaged righets, the pressure of the atmosphere upon the yelling cleat-valls may cause such impediment to the expension of the lungs that serious dyspanon may be induced. If at the same time the detest of the displanges is impeded by accumulation of fatus in the belly, the danger is really imminent. On the other hand, in cases of nettral pulmeany mischief dysprises is not always present. We find it, indeed, in Warried posturous and broadistis, especially if the latter discuse is socongenies by any occlusion of the tubes; but in other cases of interferther with the pulmonary function it is exceptional to see signs of suffering from numerous want of air carried to an extreme degree. Even in advalued pathons distress from this cause is much great; and in crospons postmoria and college of the lung the respirations although greatly quickered, are accompanied by little or no exaggeration of movement, and disperses in the sense of an active feeling of oppression of the cliest cannot or said to exist.

In every case of dyspassa we have, therefore, to commine very enodily in order to discover the cause to which the impediment to requiration may be correctly attributed. As a rule, perhaps, dyspassa is troughlar in its severity. It is subject to temperary increase and diminution, so that the patient from a condition of great distress may pass into a state of comparative case. The term "peroxysmal dyspassa" is, however, confined to cases where the difficulty of breathing occurs in attacks of variable assuity, which last a longer or shorter time and then pass compittely away.

There are exclain rare causes of remittent dyspress in the child which may be mentioned. These are—paralysis of the respiratory numerics and of the displacagm, such as may occur as a sequel of dipitheria (see page 100); interstatial orders of the lung from acute Bright's discuse (see page 10); and clotting of blood in the pulmonary artery (see page 98). These losions are, however, exceptional, and the dyspress they induce is not purely in the correct sense of the word; for sithough the feeling of sufficients.

moderates, it does not entirely subside.

As commonly met with in the child, paracysmal dysposa, i.e., dysposa occurring in paracysms with intervals of complete intermission, is a result of the following causes:

Strickloss intyngitis.

Pressure agon the tracken or a large broachus by swellen broachial glands.

Obstruction of a broadure by a foreign body.

True broughial asthma, occurring often in the course of chronic bron-

chitis and enghyeems.

Of these the first-named disease is fully considered elsewhers. It requires no further notice in this place, as the evenity of the laryngeal symptoms at once indicates the sent of the impedient to respiration. The other forms of paraxysmal dyspaces are often confounded together under the common turns of "nathuratic attacks." Dyspaces musing from the pressure of calarged bronchial glands and the difficulty of breathing induced by the presence of a foreign body in the air-tubes are described in other parts of this treaties. They will, however, be again referred to in discuss-

ing the diagnosis of asthma.

Brosshid asthma is comparatively seldem met with in the child. When it occurs at this period of life, it appears to be almost invariably the consequence of whosping-cough or enturial paramonia. The seizures sharps assume the "cutarrial form;" indeed, the subjects of the discuss are usually sufferers from emphysems of the lungs, and the attack of dyspins occurs as a consequence of a fresh enturch. In many cases the child come of a gonty tatally, and sometimes the palmorary discuss appears to be hereditary. The tradency to asthma is occusionally associated with a tendency to general eccumious eruption; and Dr. West states that he has never knows eccum to be very extensive and very long continued without a marked liability to asthma being associated with it. The two affections may alternate—the one subsiding when the other appears—as in the use of a boy of six years old referred to by Calibrat; but they may be also consistent, and the cure of the one is often followed by the sharpparature of the other.

The exciting causes of the attack appear to be in most cases the inhalotion of some irritating matters, either in fine dust or vapous, directly into the sir-tubes. A paroxyom sometimes follows an indigentible meal or is induced by food imperfectly maximized and immedly swallowed. It has been consequently suggested that irritation of the gastric figurests of the promonguatric may be reflected to the pulmonary branches of the nerve, and through them set up spasm of the tubes. But the theory of reflex

action is surely exposed to a severe strain by such an explanation.

Without expressing any opinion upon the veted question of the nature of the asthuatic senure—whether it be a pure neurous (as is commonly held) or not-I may observe that it is at least curious that in children, whose tendency to nervous spasm of every kind is one of the physiological peculiarities of early life, pure usilma should be an affection so carely not with; that while general convulsions may be induced by peripheral irritation of various degrees of severity, while speamedic confunction of the glottis may be set up by a triffing laryageal catagris, an attack of parcagamal slyspasses from spasmodic occlusion of the smaller ain-tubes should be a phenomenon of such infrequent occurrence. That it is extremely rare there can be no doubt. Of the recorded cases of asthma in young children there are very few in which direct pressure upon the bifurcation of the traches or a main brouchus by enlarged brouchial ghads can be excluded. I have seen many cases of so-called authors in the child, but large rarely failed to find evidence of swelling-often of considerable swelling-of these phinds.

Symptoms — Asthmatic children, as has been suid, are usually the subjects of emphysema. This condition often gives lattle evidence of its presence until the longs are attacked by a fresh cutarrii. The breathing then becomes encessvely appressed, so that the child is unable to be down in his bed. The face is pale, with a disky tint pound the notath and eyes; the eyes are staring and congested; the mouth is open; the lips are purple; the austrils work stolently, and the forehead is covered with bends of swent. The child is very restless, throwing about his arms, and has face expresses great suffering. His heart acts violently and irregularly, but the pulse is small and work. When the close is uncovered, all the respiratory muscles are seen to be in action, but the chest remains fully distended and more left slightly at each breath. There is little harry of breathing on account of the increased length of expiration, and the temperature is not devated

The rough is usually short and dry, but not at all paroxyamal.

On examination of the chest during an attack we find general hyperresonance of the percession note; the vesicular marmor is either very feeble or completely suppressed, and is often quite covered by large schoossibilant chanches. At the base copious subcrepitant rides may be heard,

The attack lasts for a variable fine. It usually continues more or less severally for two or three days, and then gradually subsides. As a rule, the more severe the dyspuous, the shorter its duration; but for days or even weeks after the attack is ever the child may wake up wheeling in the norming, and his breath may be short for some hours after rising from his bed.

Sometimes the oract of the attack is herakled by severe coeyas, with repented enoung, and this is quickly followed by distressing dysphosu. The oppression of breathing seems sometimes to threaten actual sufficiation and is all cases the severity of the seffering from want of air is out of all propertion to the insignificant character of the physical signs. The secure, however, invariably ends in receivery. After a time the breathing becomes satisr, and eventually all distress is at an end; but before the termination of the attack is reached there may be many alternations in the intensity of the dysphora, and even after the days have become peaceful the nights any still be disturbed by a return of the puroxyens.

Diagnosis.—In cases of puroxysmal dyspaces it is important with regard

both to prognosis and treatment to assertain the stact mass of the dis-

tressing symptom.

When the dyspense is due to occlusion of the largest from space, from impaction of a foreign body, or from the pressure of a retro-plaryageal aboxess, the difficulty lies chiefly in inspiration. As each breath is desenthe soft parts of the closet suck in and the opigastrium is deeply retracted. The inspiration is excessively long and laborates, the expiration about and comparatively easy. At the same time crowing sounds are produced in the

glottis and point unmistakably to the sent of the impoliment.

In cases where the handranes to respiration is scated at a linear lend, as when a main broadons is obstructed by a foreign body, or the tracker at its hidden and account of compressed by a mass of swellen glands, and also in cases of broadsal asthma, the distress is chiefly seen in expiration, which is prolonged, laborates, and ineffectual. Attacks of dispuses from these causes require to be very confully discriminated, as they not all convergly spoken of as "asthmatic attacks." The most frequent of these in children, beyond all comparison, is enlargement of the broadchad glands; and most cases of "authors" in early life are due to direct pressure by enoting glands upon the air-tables. Serotulous children are very sensitive to child and readily take cold. They are consequently frequent sufferes from palmonary sutarch. In these attacks the glands undergo a rapid temporary increase in size, and their enlargement may set up serious pressure upon the windoine of its inforcation.

Dyspaces from this cause is often intense, and comes on in volent parcaysms which usually occur at night. The character of these segmes has been obscubere described (see page 182). In such cases there is not always distributed the upper part of the sternum, or between the scapulafor alteration of the percussion note can only be noticed in cases where the swellen glands are in conduct with some part of the classicall. The chief collection of beonelial glands lies in the hidroration of the tracker; but others are distributed along the course of the bronchi as far as the thirdor fearth subdivisions. Enlarged glands, therefore, may be found after death deep in the substance of the lang, as described by Craveilline. The effect of enlargement of these bodies is to press upon and flatten the air-passages and if the calibre of the time may be completely occluded. By such means

the most serious dyspnosa may be produced.

A little girl, between three and four years old, was said to be subject to forerish attacks which lasted from a few chips to a week. In these the class first showed symptoms of esturch and then began to softer from negetadysproes. In the last of these attacks, as described to me, the breakless new began quite suddenly at night and woke the shild up from her elega-She was said to have started up gasping in the utmost distress, and let voice was hourse. After about an hour the percayon subsided and the child had a violent attack of spagnodic cough, retching up much palegua The seizures were repented for air nights in succession, becoming lowenr. less sense towards the end of this period. In the dayting the patient seemed frirly well, although towards greating her breathing would be a little short. Her rownko foed a great deal. This little girl was brought to me some time after the last nitnek had subsided, when she had returned to her usual health. The jugular veins on each sold of the neck were then testiced to be fell, and the venous radicles on the front of the clast in be monaturally visible. There was a suspirion of dulases on the upper beas of the steriotic, and when the child bent her head backwards a yearn has

era hourd at that spot, ceasing when the chin was again depressed. The large stid not appear to be emphysematous, nor was there any definess at either apex; but the formiti-search were very loud and hollow at the en-

pra-spinous fosso, especially in expiration.

There can be little doubt that this child was suffering from enlargement of the bronchial glands. The character of the attacks, accompanied by homeness of the voice, the bleeding from the nose, the fulness of the jugular in the neck and of the superficial veins of the chest, the hillow breathing at the upless without sign of disease of long, and the veiness from heard at the upper part of the sternum when the head was retracted—indicating some pressure set up in that position upon the left innominate vein—all these eiges were very suggestive of glassicals subargement. The child had a scrothlous appearance and was living in a cold, damp situation. She was treated with solide of iron and cod-large oil, and was sent to pass the winter at Bournemouth, whence the returned greatly improved.

This subject of glandular enlargement in the mediastinum has been already considered in another place. The reader is therefore referred to the chapter on screening for faller details with regard to the phenomena produced by the lesion and the signs by which its presence may be ascer-

tained (see pages 182 and 183).

The intrusion of a foreign substance into the broughts is sometimes a case of paragramal dysprom. This accident may be empected if a first attack come on quite suddenly at or shortly after a meal, or under circumstances which justify the assumption, as when a child is playing with small objects which might readily slip into the larynx. In such a case, if the objost be a small one, the breathing is not always affected at once; and if sing cough and discomfort are excited at the first, these symptoms almost invariably salesale, to return after a longer or shorter interval. Professor Henoch has reported the case of a girl, aged nine years, who went to bed apparently in good health, but was restless, complaining of discondert during the night. Towards the morning she was sexual with extreme dyspanon and cyunosis. The child was taken to the hospital, where no signs of palmonary disease could be detected. Shortly after her return home she began to comit large quantities of undirected food, amongst which wate found pieces of a hard-tottled egg which she had hurriedly avallowed. on the provious evening. When the vomiting had subsided the girl had a good night's rest and the dyspaces did not return. In this case Dr. Henock attributed the desputes to arritation of the gastric filaments of the vague; but it seems more probable, as Dr. Birkart has suggested, that the symptoms were due to nettral broadnial obstruction by a partion of the imporboth masticated food. The ordinary symptoms produced by the presence in the air-tubes of a foreign substance, and the means by which the conse of the despous may be recognised, are treated of more fully in another chapter nice page 527).

The diagnosis of beenchal asthma has usually to be made by exclusion, no other cause being found to which the access of dyspron can be stributed. When called to a child who is said to be suffering from attacks of severe dysprom, unaccompanied by larguped stribut, we should first of all suspect the presence of enlarged bronchind glands. If the most careful examination fails to detect the existence of any such lesson; if we find that in the interval of such attacks the child is well and heavy, without albuminum or sign of disease of the heart; that the scirmes came on under the influence of a pulmonary enterrit; and that the only physical

signs discoverable consist in a certain hyper-resonance of the percussionnote with an occasional click or coo of thouchus, we may conclude that

we have to do with a case of broughial asthma-

Proposite—If the child be in such a position in life that proper accurates can be taken for his relief, his prospects are not unfavourable. If he can be sent away to a proper climate, be warmly dressed and encludy attended to, dyspaces from enlarged besteldial glassis or from tenselial authors is usually recovered from. The most serious fortes of parayeral dyspaces are those which result from the pressure of a foreign body in the air-passages; from interstitial pulmonary orders in Bright's disease; and from eletting in the pulmonary artery. In the last of those, few mass recover. In the case of Bright's disease when the illness is of the arms form, we may have hopes that if the immediate danger can be tided over, the child may eventually recover. If the result machine he chronic, the progresses is very male coursely. When the dyspaces is due to the entrance of a foreign body into the nir-passages, the progresse is given absorber (see page 1831).

Treatment—If the child be first seen during an attack we are forced to treat the dysponen without reference to its came. Strong neutral positive should be applied to the classt and moved about from one pine to another over the front and back of the thorax. Secretion aloued be premoted by giving but liquids to drink; and a very useful form is that composed of a descerbepointal of liquids more acetatis, diluted with three or four times its bulk of het water. Trousseau recommends the burning of stransonium leaves in the room; but this is a very uncertain remedy and has lately fallen out of favour in the case of the adult. The funes of altre paper are preferred by some. Enough should be used to take the atmosphere thick with the nitrous vapour. If we can discover that the child has lately swallowed some indigestible food or notice my under distention of the abdomen, it will be well to relieve the stomach by in

emetic dose of species in his wine.

When the attack of dyspinos has subsided or the respiration has become easier, we shall be probably able to examine the putient sufficiently to form an opinion as to the cause of the distress in breathing. When the disquess is due to enlargement of the bronchial glands, or to my of the less common causes which have been mentioned, the general treatment

to be pursued in described in other parts of this treatise.

If the case he one of beenehal authors the child is almost invariably
the subject of pulmonary emphysems, and the treatment recommended
for that condition of the lung should be acrupulously carried out. All
musus which intigerate the general health are useful, and codditor all
with iron, especially the iodials of arcs, should be prescribed. Feeder's obtion of arsenic is also often of service, especially in mass where the authmatic symptoms are associated with eccents of the scalp or other part of
the body. Dr. Theoromycoel adventes the use of a tonic during the day,
and recommends a sociative at night, such as a dose of the extract of
stramountum or lineture of belladonum. Thus, a child of six years all may
take three or four drops of the liq arsenicalis with ten of the incture of
perchloride of iron freely diluted after each used, and on going to beltwenty to thirty drops of the incture of belladonum.

The hypothermic injection of pilocarpine may be used in these cases, as directed by Dr. Berkurt. Children bear this remedy well. For a child of five years old, gr. \(\eta_0 \) to gr. \(\frac{1}{2} \) may be injected under the skin when the child is put to bod. In the daytime the arsenic and iron can be continued. When the attacks of dyspacen come on chiefly at night, the child should be forbible to cut bourthy in the latter part of the day, and should by no means be permitted to go to bed shortly after a full meal. Indeed, core should be taken at every meal that the stomach is not overloaded, and Dr. Therongood's caution that mesteration should be exercised in the use of larinaceous and mechanism articles is especially wise in the case of a child.

The whole secret of the treatment of those cases consists in employing all available measures for improving the conscal strength and in guarding the patient carefully from chills. Exercise, gymmatics, and games which farther the development of the muscles and promote the action of the skin

are all very useful.

CHAPTER XIV.

PORRIGN BODIES IN THE AIR-TURES.

The passage of solid substances into the air-tubes is a far from uncommon accident and one to which children, for obvious reasons, are peculials liable. Articles of the most varied description have been insductionly drawn into the tracker, and their retention in the broads may not call produce the most serious distress but set up produced disorganization in

the affected bing:

Fruit-stones, as might be expected, are perhaps the commonest things to make their way into the tracken, also peak beams, grains of com, unious seads, lefts of solid food, fish-bones, portions of suit-skell, and my small articles which lie about in a room or can be picked up from the flow, such as little coins, tin tacks, dress-backs, buttons—all of these objects, and many others, have been known to pass between the total cowls and be impresented in a broachus. It is at first difficult to understand how a substance as large as a plane or date-atom can pass through the narrow apercure formed by the rocal cords in a young daild. It must be remembered, however, that when the chest-walls are expanded in the act of impression, if a solid budy is drawn into the opening, a very strong pressure from the external atmosphere forces it anymode, while resistance in very triffing on account of the tendency to form a vacuum inside the chest. Consequently, the solistance is driven through the opening with considerable forces.

Morbil disclossy.—The morbid changes which result from the present of a foreign substance in the sir-passages are often very extensive. The immediate consequences are congestion and scritation of the nursus memterne lining the bracker, and if the substance is small enough to prostate into them, of the bronchi. Secretion then takes place of a thin both fluid which soon becomes purelent, and may be so profuse that after deals the six-bates are found filled with yellow purelers matter. Thick lymph may be also thrown out so as partly to cost the obstruction. In a case recorded by Mr. Bullock the lymph became organized into fluorous meta and almost closed the upper portion of the windpipe. The nurcepos is theck and ropy and in long-standing cases may be prespecially feed.

A substance capable of passing into the larger broach something inflammation in the large. The inflammation may be lauted to one idea; or may spread to the entire organ. Sometimes both large are effected simultaneously, owing to the offending substance being dislocked by the repeated cough and falling back into one or the other broaches arbitrationally. The affected part becomes consolidated, and if the irritation passion, soon distributed and breaks down. Cavities are thus produced which are filled with offeners and occur gaugemone delens and making passion matter. If there be no sufficient communication with an air-passion the contents may be retained, but usually an opening becomes established

with the bronchus and much fetial matter is expectorated. In scropsions or intercular subjects gray grammations may be developed in the hepatized fiscit around the cavity, and it has improped that the shad has died from general telescentosis. The bronchial glands also become enlarged and

checis.

Bendes precesses of they pulmotary lesions may be present. More or less employeems is usually produced, and collapse of portions of the long may occur. The inflammatory action may not be coffined to the long. Empress is a common consequence of the presence of the irritant; and expresses quantities of purulent fluid have been found distending the pleared carety. Personnlitis has also been known to occur, and in a case recorded by Mr. Solly a large abscess had formed in the mediastinum as a consequence of the pericardial inflammation. Sometimes the abscess of the lang becomes adherent to the obest-wall and points in an intercostal space or elsewisers. Dr. Wilks has referred to a case in which an our of corn asexpel in this manner from an abscess which had formed in the suprascapalir region; and other cases of a similar kind are on record.

Symptonic - The irritation produced by the extrance of a foreign body. into the trucken and broachi varies greatly in different potients. Although in the majority of cases the suffering is extreme, in a few instances curiously little discomfort appears to be excited. It is important to be aware that violent despuss is not an unfailing symptom of this accident. In some recorded cases a little cough has been the only inconvenience complained of. Dr. Goodheart has stated that on two occasions in his experience in which dissection revealed gangrene of the lung set up by a spicala of bone in one of the brought no symptoms and been noted during his pointing to the entrance of a foreign substance into the air-tubes; and thence conciades that pulmonary disease is more often excited by this mischance than

Amount virous of

Still although in exceptional cases the suffering may be slight, as a rais the intrusion of any adventitions matter into the windqupe is a cause of insuediate and extreme distress. If the substance he of large size it may completely coclude the glottis and came uniden death. Many cases are on record in which the entrance of the wind-pipe has been blocked up by a lump of food with immediately fatal results. Smaller bodies which can pass readily into the air-tubes, if not arrested at the bifurcation of the traclass, fall as a rule into the right broadms. Mr. Goodall of Dublin pointed out many years ago that the septum of the division of the windpipe is placed considerably to the left of the mental line, and that this position tends to detlect any substance falling against it into the right division of the sir-take.

The first consequence of the arcident is usually a fit of severe dyspusawith sense of impending sufficiation. The child shows all the eruptous of the most extreme distress. His even look wild; his face is lived; his hises work; his chest heaves convulsately; he tears with his hand at his firmat, and bursts into a purosyum of spasmodic cough. As a rule expiration seems more difficult than inspiration, and the effort to discharge sir from the lange as laborates and painful. In some cases from tinged with blood appears at the lips. The early symptoms are more severe if the object ledges sufficiently near to the glottes to keep up irritation of the yoral cords. The attacks of spasmodic cough are then almost messent and the difficulty of breathing extreme. In ordinary cases after some tribudes the more prepent symptoms about and may entirely subside, so that the child who a short time before had scened on the very point of sufficiation retorns to his play as if nothing Ind Impresed; but after a period of calm the parexysms usually return with more or less violence. The period of repose which follows the first access of dyspinos is of very variable duration. It may last from a few minutes to several hours; and cases have been published in which no return of the distress was emerenced for many months. The degree of suffering in these cases, scould ing to Dr. Stokes, is dependent to a considerable extent upon the completoness with which the intruding body interferes with the passage of air through the tube. He states that in all cases which have come under his awa observation the distress was great in proportion to the feelings of requiretery murrour in the affected lung. A smooth body, therefore, such as a bun, by completely occluding the tube easses greater suffering than a more irregular substance will do; for the latter, although it obstructs

the passage, does not render it absolutely impermeable. Often in phlitica to recurring attacks of despose and spamous

cough there is a fixed pain or soreness referred to the throat or some part of the chest, back, or side. This sensation is probably dependent upon the impaction of the intruding substance in some particular part of the broughos, for it has been known suddenly to shift its place, passing from the throat to the chest or to the region of the nipple. In more cases the pain is accompanied by a sense of constriction. Often, also, there is imbility to lie on one or the other side, such a position increasing the upony feeling and impeding the respiration. Sometimes the child can only breaths with case in the sitting position, and has to be propped up in tol. with pillows. The fits of coughing are of a peculiar character. They see trendly exceededly spasmodic and often resemble the cough of perhasis. They are accompanied by much congestion and lividity of the face, but are not followed by attempts to vomit. Sometimes the paroxyum are so violent as to lead to a convulsive sensire. If the object introduced is a fruit-stone or similar solid substance, and is free to move in the sirque rages, the cough may be accompanied by a peculiar clicking or flapping noise heard in the direction of the larynx, and produced apparently by the impact of the object driven upwards against the glottis by the correst of sir. In many cases the impact may be felt as well as heard if the singer and thumb be applied during the cough to opposite sides of the largest

The wire may be smaltered unless the object be arrested in the neighbourhood of the glottis, as in one of the ventricles of the larger, in which case there may be any degree of hourseness even to complete aptomia-

On importion of the classi considerable recession of the soft parts in usually to be noticed in inspiration, and there may be a swelling of the neck and upper part of the cliest from surgical corphysems. Often a playsical examination at an early period detects little or no deviation from a healthy state. There may be perfect resonance; the respiration may be normal, and nothing may be beard but a little somerous or either thetechas over the lung in connection with the occluded brouches. If the foreign substance be impacted and immovable in the air-tube signs of collapse may be naticed at some part of the lung a few days after the secircuit; or there may be absolute suppression of the respiratory minimit over the whole of the affected sole.

Whenever irritation is excited in the air-passages there is fever, and the general health of the child necessarily suffers from the constant sixtress and interference with sleep. Food can, however, he taken without difficulty.

In some cases after a few hours or a thy or two a spendament expel-

sion of the offending substance takes place during a fit of coupling and the patient is instantly rehered. If however, the shift is less fortunate and the foreign body remains in the takes, its presence being unknown or effects to procure its removal houng proved fruitless, scripus consequences cause. The object may become impacted in the largux, causing shath by sufficulties; it may set up a violent enturrhal presencein and the potient may quickly die; it may give rise to suppuration and gangrene; or it may had to chrome phthasis which on is fatally after a more or less linguring illness.

Spontaneous expulsion usually takes place as has been said, during a vision fit of coupling. It may occur after a short or a long interval; and in some cases a period of yours has obspeed before the offending substance has been ejected. The completeness of recovery in such cases depends upon the degree to which the lung line suffered from the presence of the laurelet. If the fension body have only given rise to irritation in the lung, its removal is followed by instant and permanent relief. If however, pure monia have been set up, or an absence have formed, or chronic phthicical charges have been induced, the patient may die, although the original same of his suffering has disappeared.

In cases where the foreign feedy remains in the tubes, a constant source of irritation and of interference with the function of the affected organ, the physical signs depend upon the form of lesion which is produced. In some cases profound disorganization of the long follows, and extra-costal expansion may be set up leading to the formation of a large supericial al-

BORRAL

A little boy, aged seron years, whose family history shared no tendency to phthisis, was in his usual health when, on March 28th, he returned from whool stying he had availabled a distriction. He complained of difficulty of benthing and pain in the sale, and coughed a great deal. The symptoms apparently were not very severe, for the child was only brought to the hospital on April 8th. On his admission it was noted: "Much recession of the lower parts of the chest on inspiration; intercostal spaces more equally on the two sides. Resonance good over both sides, but on the left the imponition is everywhere high-potehed and broughood, and is as loud below as alone. No riscushus or fraction. Heart's apex between the fifth and sixth abe just outside the maple line. A famil double friction-sound at the base of the beast and a soft systolic mornour at the apex."

At this time mething was known of the sections; and as there was but little opposed on of breathing and the cough soon after admission was found to be spasmedic, the boy was thought to be developing who ping-cough

and was sent out by the House Surgeon.

On April 22d, the child was brought back to the hospital with a full second of the origin of the illness. It was stated that after his discharge le had continued to cough in a spaceholic manner and to whosp occasionally. He had often complained of pain in his stomach and left side and his breathing had been oppressed. He had little appetite. His skin had been but with occasional perspirations. Shortly before his return to the hospital the aspirator had been used to the client by a practitioner of the brightle urboad, but no fluid had excepted.

The boy appeared to be excessively all. He complained much of pain in the alchomen and by with his knees drawn up. The abdominal partcles were somewhat retracted. Over the left back reaching from the postetior axillary line nearly to the spane, and from a little above the lower sigls of the scapula to the tenth rib, was a large superficial collection of matter. This on being opened was found to consist of very offensive pas. The abscess evidently communicated with the pleural easity, for my our surbod in through the wound at each inspiration. The bod's branching was laboured and his voice whispering. An examination of the dear ma indicate an account of the tenderness of the side. It was however, mentioned that resonance of the left back, although impaired, was not quite lost, and that the respiratory sounds were conveiled by load conking and granting then less.

The box remained very presente and in great distress. He was recessively real-so and occasionally screened in a very hourse vote. The discharge from the would was inexpressibly fetial. He died to April 25th. His temperature after readmission varied between 100 and 1024.

On examination of the body, seventeen hours after death, the seperscial abscess cavity was found to extend from the middle line of the right sharide across the close and round the left able to the spine. The skin over it was midden and seemed almost decomposed. The body was much examined. On opening the chest the right ling was generally allowed to the sheet-wall, although not very firmly. Its substance was somewhat congested but otherwise normal. The bronchi were injected and then minorial lining orderators.

The left long, firmly adherent on its posterior surface, was extensively disorganized. Its substance tore easily and the smell was almost inapportable. The surface of the displange had the appearance of an also so. In the eighth interspace, about one melt belond the posterior sufface in the eighth interspace, about one melt belond the posterior sufface into the longer ulcerated depression rather more than as such in discrete at the bottom of which was a perforation communicating through the intersectal space with the superford absence. The tracker was injected and in the left boundars was a date-stone impacted about an melt and half from the highestion. The lining membrane of the broachus was related and orderations, but the air-passages contained no excess of fluid. On account of the disorganized state of the lung it was impossible to as whether an absence had originally formed in the neighbourhood of the date-stone. There was no peritonitis. The left vestriele of the least was hypertrophicd, and the edges of the mitral value were much thick-enest.

This case is pseudar on account of the situation of the foreign body, which had possed into the left bronches instead of the right. When the child was first brought to the hospital no mention was made of his arrident, and nothing in his symptoms suggested the pressure of a solid substance in his lung. There was no great distress of breathing and the physical signs such as they were, were limited to the left brog, the right side of the chest being healthy.

The foreign body after passing the rima glottidis may be caught in one of the contricles of the buyers; it may become fixed in the tracket; so may pass further down and bedge in one of the princip divisions of the air-babs. There are, therefore, certain varieties in the ayangtons according

to the position of the electraction.

If the solid substance remain in the larger, the voice is suppressed; the dyspaces is continuous; the cough is generally violent and cross; the child feels as if he should chole; and there is often pain referred to the situation of the cricaid cartilage. It may, however, be remarked that uphous is not limited to these cases, and that a hourse whispering ware does not necessarily indicate that the obstacle is freed in the larger. In the case just marrated although the fruit-stone was impacted in the larger. broughts and the largus, was free, the voice was hourse and almost sup-

ARCHIEL

If the substance lodge in the fracken below the largue, the suffering preduced is not very great, as a rule, so long as the passage remains persions. In the often-quoted case related by Mr. McNassam of Dublin, in which a loop who had constructed a whietle cut of a plum-stone, insireflectly drive the toy by a strong inspiration through the glottis, the object remained fixed transversely in the lower part of the largue, and gave rise to a whistling seemal as the air passed through it in expiration. The only inconvenience produced by the accident while the obstacle remained in this situation was an occasional suffocutive cough; but this did-

not prevent the boy from running about and playing as usual.

In the brunchus the exceptions produced for the presence of a foreign body vary according as this is fixed or is free to more. If a smooth substance, such as a fruit-stone, become fixed in the broading, it causes great factors by plugging the sirculate and arresting the function of the corresponding lung. The air cannot eater or emaps. Consequently the patient experiences great dyspinon from sudden less of half his breathing surface. He has attacks of apassocial cough from the irritation induced at the seat of obstruction, and on the affected side the vesicular narrount is recokened or suppressed. Catarrhal passumonin in this case follows very quickly. If the impacted body be irregular in shape, so as still to allow the passage of air through the labe, there is less opposition of breathing, and in many mass less irritation in the lung; also, the pathological results are more choose in their course.

If the introduce substance be free to more, as is constimes the case with a rounded body which does not so realtly become impacted in the sir-tube, very carious consequences follow. When the object is carried against or into the larynx, it produces spasmodic rough and an agentaing facing of sufficiation. As it descends again into the lower tube there succeptle a period of comparative calm; and the physical signs which becosen described as indicating impaction of the substance in the bronchus my perhaps be noticed. This alternation of sufficiency cough with inferrals of more or less complete repose are very characteristic. It is in the cases that the presence of the foreign body can assections be detected by the ear and the touch. In the case of a little gark aged two years, who was under my care in the East London Children's Hospital suffering from the presence of a harrest bean in the air-tubes, the physical agas noted by the House Surgeon, Mr. Scott Battanes, on the evening of the day on which the assident happened were: "Air enters fairly well into both tiles of the chest. At the spices expiration is prolonged and wheezing. On hittening at the middle of the right back a sound is heard as if a mildbuly were drawn down in inspiration and carried away again in a forced equation. The child, although not much treabled by dysposes, suffered Bootly from cough; and when this was violent the finger and thumb plated on either sole of the upper part of the tracken could feel a distinct impart as of some solid body striking this part of the take with each impains of cough. Afterwards with the stethoscope placed upon the same part a dail time-like would was distinctly audible as the object was forced sprants by the correct of air.

Phayeou.—Whenever a foreign body has passed into the windpipe it is of the utmost importance to the patient that there should be recupelery as to the cause of the symptoms, for receiver will probably depend upon teally measures being taken for the expulsion of the offerding substance. The diagnosis reals upon the history of the socident and the suriden securrence of the symptoms in a child previously healthy; also, upon the minre and situation of the physical signs to be discovered on communion of the chest.

The listory is not always to be obtained. Thus, in the case of a laby, unless the chief have been seen to play with some small object monelisted. before the suffective attack occurred, the likelihood of a foreign body have ing passed into the traches may not even be extertained. Again, the history may be misbesting. Attacks of spasmodic laryngitis may occur in a young child while at play; and if any small objects likely to produce such symptoms are found within his reach, the inference that a similar object has been introduced into the air-passage is sufficiently obvious. If the attack of lavagitia occurred first under such circumstances; this inference would be almost unreoidable. Still, although not necessarily concludes, a history of the probable introduction of a solid substance most he windpape is of great value. If a shild while in his usual health has been eating sheed fruit, or playing with small articles such as peas, hariest being or grains of corn, and is seized all at once with violent opposition of breathing and spaniodic cough, we should consider very carefully the evidence to be obtained from a physical examination of the chost. It must be remembered that the first distress is only temporary, and is succeeded by a period of calm, of variable duration. When called to such a case, therefore, we must not conclude because the child's suffering has subsided that all danger is at an and,

The physical signs in these cases may be indicative of pulmonary irrelation or of more or less complete obstruction of a broachus. The irritation set up in the air-tube leads quickly to increased secretion, so that more or less sibilant or nonorous rhonehus and bubbling rules are usually heard with the stathoscope. If in a case where the symptoms occurred suddenly under circumstances suggesting the introduction of a solid substance into the windpipe, the above signs of irritation are discovered on one side only, and that wide the right side, the evidence must be looked upon as impor-

tout.

Signs of plugging of a bronchus are, however, of the greater was. Complete absence of breath-sound and of respiratory more and over the whole of the affected side without alteration in the normal resonance—these signs occurring unideally in a child in whom sufficientive cough began all stones in the midst of perfect health, would be strong evolution of the presence of a fereign body in the air-tubes, even in the alessace of any history pointing to such an accident. If in such a case violent sufficience overplorating to such an accident. If in such a case violent sufficience overplorating to the chest, the semestime time the morbid phenomena daughers from the chest, the semicular nurman returning with actural lenatures on the side previously allest, the phenomenous is very characteristic. These alternations of comparative calm and absence of breath-source with violent spannedic cough and perfectly normal physical signs may be looked upon as pathognoments. If the impact of the impressed body can be felt and beard in the fraches during the cough, the systems time formished of the presence of a solid substance in the air-passages is practically constant.

If the take, instead of being perfectly closed is partially permutik, appreciable weathers of the resicular sourmer may be noticed so the affected sole. Such a sign occurring alone may have little importance attached to it; but if with weak breathing over the right long we notice source ablast chouchus or bubbling ribes over the upper part of the same side the

other lung being healthy, the combination is of some value.

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When the fereign body remains in the largest cought in one of the centricles, the resulting symptoms—aphonia, dyspansa, violent croupy cough, and sense of choking—may suggest stridulous largegitts or membranous croup. In such a case the history of the seizure, especially the sudden recommon of the distress in a child previously in a state of perfect health, is of great importance. In stribulous largegitts, although the complaint often begins with much violence and quite suddenly, the spann almost invariably occurs at night, the child starting from his sleep with urgent dyspans, and the symptoms subside completely after a short time. In the case of a solat substance in the largest the access occurs while the child is awake and at play; the dyspans is more continuous; and the remission, if it occur while the foreign body remains in the neighbourhood of the larges, is far less complete.

In tarrahemous group the attacks of dyspaces come on gradually, and should increase in severity; the voice is not whapeving at the first; and in

many cases patelies of false membrane may be seen in the forces.

Proposes—If expansion of the imprisoned body cannot be effected, the prognous is very gloomy; for although cases have been recorded in which the patient has continued for years to suffer little from the presence of the solid solutioner in his air-passages, such cases are very exceptional. Most commonly ill effects are not slow in making themselves evident. The prognosis is more favourable if the impacted object is of pregultr shape, so as to allow air to pass and repass it in the tube. In such cases the patient may escape unpid death. In almost all the instances in which charact plithiscal changes have been developed as a consequence of the accident the substance has been of an irregular shape.

If expulsion is effected, the progressis necessarily depends upon the charges which have been set up by the irritation of the substance during its retention. Caronic phthisical symptoms often solvide in a surprising manner after the ejection of the offending body, and in such cases, unless disargunization have proceeded too far, recovery artsy he hoped for. If also sees or gaugenne have been set up in the lung, death generally enems.

Preatured.-When we are satisfied that a foreign body is retained in the air-inbes freatment must be energetic. Executes have been found of little raine and may therefore be dispensed with; but if we are certain the the solid substance is of small size, the child should be at once turnedhead downwards and shaken in the hope of distoriging the imprisoned body. and aiding its ownpe from the tubes. Often violent cough comes on during the operation, and sometimes so much spasm is excited in the glottis by the solid body pressing against it, that our efforts have to be promptly discontinued. This proceeding is more likely to be attended by good results if the substance is small. A shot, a seed, or object of similar size, would be able to pass without difficulty between the vocal cords, while a larger one might become impacted in the glottis and cause speely death by suffication. Whenever, therefore, the foreign body is known to be of some size, it is wastr to postpone all violent measures, such as eversion and securios, until an artificial opening has been established in the traches. This procedure is equally important whether the imprisoned budy be fixed tw be free to move. If it be fixed, the air-tube can be directly ecoched by a long forceps, and the object may sometimes be seized and withdrawn in this manner. If it be free to move, an artificial opening in the trackes is a great and to its escape, as under these aftered conditions the glottic relaxes readily and there is no risk of dangerous specta.

After the operation the imprisoned body may be ejected through the

wound or may pass through the released glottis. In the latter case it is spt to be smallowed. If, therefore, it be not found after the signs of suffering

have subsided, the stools must be carefully examined.

If the early memores for precueting the escape of the solid body do not succeed, or if on account of the size of the substance we fear to employ them. it is seldern judicious to delay the operation of trachesteny. It want be remembered that it is only in exceptional cases that the continued pressure ed a foreign substance in the air-tubes line been borne without dangerous injury to the lung. As long as it remains in the respiratory pusuges there is constant danger of sufficiention from the lodging of the object in the larger, and of serious disorganization of the Image from the invitation set up in the takes. Therefore, if we are satisfied that a solid body is morisoned in the posseres, the fact that the resulting symptoms are not urgest should not induce us to postpone the operation. As Mr. Barwell has alserved, "If a body be impacted in the largue or tracken urgent symptoms will mean merely increased irritability and speam of the glottis, and on removal of the foreign body this will naturally cease. If the body he in the broughus and do not move, argent symptons will mean the establishment of serious disease in the lung," and this may not disappear when the foreign substance is removed,

The operation is equally necessary whatever be the nature of the substance in the tracken. Soft uniture, such as gradle, etc., will not become disintegrated in the sir-tubes; and small vegetable substances, such as seeds and grains of corn, may swell up to a much larger size through

absorption of arcisture.

Part 7.

DISEASES OF THE HEART.

CHAPTER I.

CONGENETAL BEART DISEASE.

Last other parts of the Issly the heart is subject to multirenations from arest of development. These vary in importance according to the puriod of intra-uterine life in which they occur; but all, since they affect the centre of the circulatory system, materially hamper the distribution of the blood-current and therefore interfere with the due discharge of all the

nutrative functions of the body,

In its progress from the simplicity of its rudimentary state to the complex machinery of the fully developed organ, the heart passes through a surety of changes. At first a mere tube doubled upon itself, it soon because should into three cavities—a simple nuriele, a simple ventrade, and the around bulb. At this stage the organ resembles a house-showing along, the ventrade occupying the position of the curve. This cavity then begins to hinly out more conspicuously at its lower part so as to suggest to its appearance the later form of the heart; and at the name time the same and the bulb approach more closely together. Next, the samicle said ventricle become each divided into two parts by a septim; and the bulb arterious is also divided into two channels which are the future acets and padmentary artery. The autscular and tentricular softs are each at first monuplete, so that the cavities accurally communicate; and the opening in the surrealar septum—the former ocula—remains open and bottle.

Just before the completion of intra-sterine existence the course of the Beed-current is as follows:—Starting from the placeuts, in which it has been to a seriain extent purified and recharged with oxygen, the blood saters the body of the forms through the ambifical vein and is conveyed to the unfer service of the liver. At this point a portion passes directly into the inferior vena cava by the darks consists; the remainder joins the blood in the portal vein and circulates through the liver before it reaches its inferior vena cava and is conveyed with the first portion to the right suricle. Here it meets with the blood returning from the lend and neck by the superior vena cava. The two currents do not, however, usin. That

coming from the head passes, as it would do in the sdult, through the amicule-ventricular orifice to the right ventriels. From the point a small quantity reaches the lungs through the pulmonary artery; but the lungs portion is directed through the abstract arterioses into the sorth below the origin of the great vessels, and passes to the lower part of the body and the placents. The blood reaching the right nuricle by the inferior can cave, instead of entering the right ventricle, is directed by the Emercian valve through the former scale into the left swirds. Consequently, this portion of the blood also escapes the passage through the lungs and is distributed by the left restricts to the head and body generally through the acets.

At birth, the langs, which had been previously inactive, come into play, and blood is drawn into them through the pulmenary artery. As a precessiry consequence, the formen orale' and ductus aftersoms—the claimets by means of which the passage through the langs had been avoided, become nucleus. The arterial shot contracts and consex to be pervious; while the formen ovale also closes and the separation of the

auricles is lanceforth complete,

The arrest of development of the heart, which is the cause of the conparabll malforuntion, may occur at any of the stages which have been referred to. The heart may retain its nearly primative form of a double cavity with only radimentary divisions between the two sides, and the north and polymonary artery may be still undeveloped from the original arterial trunk. This form is not common, but complex have been naticed. In the earliest of these, placed on record by Mr. Wilson in 1788.

the infant surrowed its birth even days.

If the arrest take place at a later period, the septa dividing the excitor are more nearly complete, and the north and pulmonary artery are distinct woods. This condition is far more common than the preceding. Its prominent feature, in midition to the still imperfect state of the partitions, is a displacement or even a transposition of the great vessels. The north is displaced to the right arising in part from the right ventricle or a springs completely from that cavity and the polynomary artery takes its origin from the left ventricle. When the north is merely displaced to the right, without malposition of the polynomry artery, we usually find some obstruction to the passage of blood from the right ventricle through its latter vessel. The artery is too small, or its valves are incomplete, or the blood is presented from passing freely into it by some constriction of the vantriole near the outlet, or its elauned may be even entirely obiderated. In all such cases the foramen ovale most remain open or the circulation could no longer be carried on. The blood being unable to find its way in sufficient quantity to the left side of the heart through the lungs cartimes to follow its original course through the opening in the nativalar septum, and the formen ocals is prevented from closing. If, however, in such a case the aceta arise sufficiently to the right to allow of the escape of blood through it from the right reatricle, the formuen scale and ductor arteriosus may cense to be pervious.

Constriction of the pulmonary artery with deficiency is the septem of the ventricles, so that the north communicates with the right contribute cavity, is the communest form of congenital malformation of the heart. Whether in such a case the foramen coals and ductus arterious are closed

[&]quot;Pader mound conditions the frames weaks should be should by the end of the lest weak, and the decree greeness by the end of the third month after birth:

ar not depends as has been said, upon the freedom with which the blood can escape from the right side of the heart shrough the displaced north. If the right ventricle is not unduly distanced, and the palaneary actory allows causage blood to get away, both these channels may become closed. In the other case, where the north and pulmonary arrory are transposed, the septum of the ventricles is usually superfect, and the formula scale and ductus arteriosus still remain upon.

Scinctimes the descending sorts is found to arise from the pulmonary artery, being apparently a continuation of the ductus arteriosus. In this case a small ascending north springs from the left sentricle to supply the hard and rock by the usual vessels. The pulmonary artery communicates through an opening in the ventricular septum with the left sentricle. The

formen orale is usually closed.

In contradiction to the class of cases where the factal openings remain persons after birth is another class in which these unifices class too suly, before uterine life has reached its term. If the foramen ovale is stifferated prematurely, the whole quantity of blood has to pass through the pulmonary artery and ductus arteriosus. Consequently, the right side of the heart is enormously hypertrophical while the left side is smaller than natural. In cases where the ductus arteriosus has undergone early obliteration, the north usually aprings from the right ventricle, and this small commonly gives branches to the lungs, the pulmonary artery being

very small and radinsultary.

Besides the varieties which have been mentioned, the congenital disease my also count in defects in the valves, or in narrowing of the critices of the large reseals which spring from the heart. Bornetines, as in the preceding cases, the defect may arise from multi-mation, as when the name ber of the valves in defected or otherwise abnormal; but it may also be due to introduce endocurbitis. Inflammation, when it minch the fortal heart, almost invariably affects the right wide, which at this period of life is more active than the left. The transpill valve may be bended, or the pulmonary semi-lunar valves may be more or less addressed. In many cases the three pulmonary valves are found united into a famile-shaped dame with a small oritice at the spex, through which the blood is propelled with difficulty. A similar atresia of the nortic orifice is much less impossibly met with. When the latter malformation exists, the arteries of the heaf and upper limbs are probably filled through the palmonary artery by the duetus arteriouss.

D is possible that these inflammatory lesions may be occasionally excited, as Dr. Von Hoffman suggests, by extravaution into the placenta, from which homorrhagic fori, pulledogical products, may be introduced.

through villous absorption (ato the festal circulation.

Morbiel dealersy,—In addition to the malformations which have been fascribed, the heart is always found to be greatly enlarged, especially on the right side. Moreover, morbid conditions are usually seen in other organs. There is often more or less at electrosis of the lungs, and the expanded partions have a dark, congested appearance. The liver and spleen are not unfrequently swellen and congested; and efficients may be found in the plears and peritoneum. Also, morbid conditions of the brain are common. There may be congestion or inflammation or effacien; or an abscess may be formed in its substance.

The congenital imperfections of the heart may be complicated by inflatomation in or around the organ, for the original malformation, for from guarding the puttent from subsequent inflammation, appears rather to prepare the way for it. We may therefore find the anatomical charge-

ters of endocarditis or inflammation of the pencardism.

Symptoms.—In cases of congenital heart discuse the most straing syngtons is the purplish or lived tint of the skin which, if the child our vive its both many months, rarely fails to be developed. Indeed, from this premiurity of colour such cases are often spoken of as cases of evanssis or "mortus coguleus." The depth of the purple that caries greatly in different subjects. In some it surrely gives a dusky or awarthe line to the skin. In others the discalaumation may reach a deep pumple or ever almost a black colour. It is distinguishable in all parts of the body; but is most notionable in the checks, lays, and cyclids, and also in the ends of the fingers and toes. Even in the same subject the symptom is hable to variation. While the child is completely at rest the first next nearly approcedure the normal colouring; but movement, especially fretfulness or anger, makes the skin darker at once. The cause of the symptic test has been the subject of discussion. By Morgagus it was attributed to intense general congestion, and by Hander to great contamination of the operial current with unoxygenous blood. The latter view has been shown to be meterable. Cyanosis may exist without any admixture of venous and arterial blood; and in many cases where such admixture occurs the depth of that is not in proportion to the amount of repone blood which is poured into the north. Dr. Pencock gives his support to the theory of Morragui. and attributes the dissolvention to stasts of blood in capillaries dilated by increatering conjection, aided by imperfect noration of the whole mass of the circulating fluid.

The symptoic tint is not always an early symptom. We obtain find that the child at birth presented no possificatily of colour, and that it was only after an interval of weaks or months that anything was naticed to explosuspicious of disease. In less consison mass the tint of the skin is normal

throughout.

In addition to the Uneress of the ands of the fingers and toes, these perts are usually clubbed from systemic venous congestion, and the male are incurrated. The shape of the clust is often possible. It is sometimes called "pageon-bremsted, but the passenence of the atomics is only noticeable at the lower part from flattering in each infra-mammary region. At the upper part the clost is abnormally prominent and remaind. The colleges of the lands and feet is another striking peculiarity in a symmic child. Indeed, the external temperature of the body may be several degrees below the normal level; but if the thermometer be placed in the notion the internal temperature will be found little lower than natural. It is, however, subject to variations, being sometimes for several days below the normal level (97–98); at other times more nearly natural. In these patients, as in healthy children, the onlinary best of the body is liable to be disturbed by teething and other sources of instation; and is sensetimes found to run up to 102° or even higher from this cause.

Dysphosa and palpetation of the heart are common symptoms. In the case of an infant the mother often remarks upon the besting of her childs heart when the patient is washed or otherwise disturbed; and other children may complain spontaneously of the throbbing when they attempt to run. At these times there is usually shortness of breath, and cough may be present. In some cases when the crassons is extreme, the cough may be accompanied by the expectanation of blood. The pulse is often inva-

ular and intermettent, but its strength is fair.

Sometimes dropsical symptoms come on. There may be colemn of

the legs, or seciles; but serous efficients are less common than might be supposed, for, as Dr. Chevers has pointed out, the verous system seems to alapt most to the overloading. The right suricle, cave, and systemic veries are often of innumal capacity from the first; and the veries of the liver are mpille of containing a vest quantity of delayed thout. The superficial terms of the chest or historiary nor visible than natural, but the skin is habitatilly dry and may be hards. The liver and spleen our often be felt to be enlarged; and on account of the congestion of the kidners the urise is habitatilly sensity and high coloured. On account, too, of the congestion of the alimentary essail, the tengue is generally foul, the breath effective, and the digestion testole. The appetite is poor or capacitiens; and the breath control or irregular, with clay-coloured pasty stools. The gums are often dark-coloured and apongy-looking, and may be observed.

at their edges. Sometimes they bleed.

Cyanotic children are generally writable and easily disturbed. Consequently at a first commination it is often impossible to come to a satisfactisy conclusion even us to the physical nigns present in the case. These are liable to vary according to the character of the congenital lesion, and my possibly be absent altogether; for if the malformation consist in a men inau-position of the areta and pulmonary artery, without narrowing. of the classnels or persistence of the footal openings, no murant will be leant and careful examination will detect no sign of cardiac enlargement. The most common mulformation, as has been said, is that in which the palmonary after is greatly constricted, and the septum between the twotricks is deficient, as that the north appears to arise in part from the right untriefs. In such a case there is great hypertrophy of the right ventriefs; we find a very strong pulsation all over the percondial region, and a lamble mappiles between the left nipple and the ensiform cartilage. The input may be accompanied by a systolic thrill. On listening to the siest we hear a load system mammer in the course of the pulmonery urlery. In the case of a boy who died at the age of nearly six years in the End London Calldorn's Hospital with this condition, the apex beat of the teast was in the fifth interspace in the nipple line. The impulse was felt very strongly over the whole precordial region, in the ejequitrium, and even to the right of the lower part of the sternam. The arteries in the neck also perioded strongly. A lond systelic nurrour was heard all over the front mal lock of the thorax. It was rather lowler at the base of the heart than at the apex, and became much fainter towards the ampits. The point of greatest intensity was over the site of the pulmonary valves. In this child there was no discolouration of the skin.

Even a patent forumen ovale without constriction of orifices or other abraumal condition will give rise to a moreour. In a case published by Dr. Bukharar Foster—on a little girl of two years old—a faint murmur was heard with the latter part of the first sound at the level of the lower edge of the third rib at its junction with the sternor. It did not become valual over a wide area, and was ambible neither at the base of the heart

now this upex.

Infants who suffer from congenital malformation of the heart are usually than. If, however, the patient survive the period of infancy, he may not be wasted and sary even have a sturdy appearance. He is usually lethergie and dull of intellect; and is contions in his movements, as experience has taught him that exertion is apt to be followed by pulpilation and dyspinors. In most cases where serious malformation of the local suits the patient is subject to niturely of syncope, and often symptons occur referable to disorder of the nervous system. In the case referred to above, the patient died of excebritis. Another cyanotic didl under my care in the East Lendon Children's Hospital-a little gui nearly. two years of a suffered, while she remained under charrention, from general loss of power, with phosis of the right epstid and confraction with rightly of the nuncies of the left forenrm. The child had all the signs of curious discusse of the right petrous hous. Discusse of this part of the shull seems to be a not uncommon besion in children who suffer from conjuntal and formation of the heart. Dr. Lawrence Humphry has kindly communicated to me the notes of a case which occurred during his period of office as Resident Physician in the Victoria Park Hospital. The patient-a cuantic buy between five and six years old-had suffered from long-outined oforthou. A fortuight before his death the discharge ceased. The child then began to complain of hendache, which became very severe. This symptom was soon followed by attacks of violent convalsions, stillout loss of reciscionstess in the intervals, and the bor died in a few days. After death, in addition to the ordinary form of congenital mulformation payment of the police many artery, deficiency in the centricular septum, and origin of the mosts from both centricles) an abscess was found in the middle leter of the left cerebral bemisphere, and the petrons bone on that sale was dischied

Convulsions are very common, especially in infants; and startings and twitchings during sleep are soldom absent whatever be the age of the patient. Another curious symptom is great heaviness and sommores. In name exameter children attacks of uncontrollable alceptness form a promnent feature in the case. These attacks are upt to cone on after a used. The child shows symptoms of great drowniness; the face becomes purple, and the breathing slow and heavy. In extreme cases the sleep becomes so profound that it rescribbes come and the child cannot be reused. After some hours, however, the patient revives, his heaviness passes off and he

is restored to his normal condition,

The duration of life is very variable. It is dependent chiefy upon the degree of obstruction to the circulation. Nearly one half of the cases dis before they have completed the first year, and two thirds before they me two years old. Death often occurs in a convulsive fit; and infants usually die in an directly after such a seizure. Moreover, attacks of quespe are common, and the failure of the heart's action is semetimes not recovered from. In some cases the patient falls a victim to presumonia or other intercurrent disease; indeed, on necount of the impaired state of satirition usually premiting, the reasting power of the child is feeble, and derrugations prove fatal which a stronger subject would have little difficulty in overvousing. Many of these children become tubercular or pitthissal and as has been said in not a few cases death is preceded by symptoms pourlying to corebral mischael.

Despects—A child, cyanotic from malformation of the heart, presents a very characteristic appearance. His dusky tint, his purple ups and eye lide, his livid and clubbed finger-tips—these symptoms, together with the physical signs and the history of the patient, can leave little doubt as to the existence of a congenital lesion of the heart. If, however, reasons is absent, the nature of the case is less immediately recognisable; but by a caseful review of the physical signs we can usually arrive at a correct consistion. If we are able to localize the nurmar at the pulmorary crites, and can discover signs of hypertrophy of the right ventracle (increase of the heart a dulmess to the right with pulsation in the spagmatrum), there a part

are almost pathognomousle of congenital disease, for endocarditis affecting the right side of the heart is mre after birth. Sometimes, on account of the small size of the chest in young subjects, it is impossible, especially in an infant, to discover the point of greatest intensity of the nurmur. In such a case, signs of hypertrophy of the right heart are doubly important; and if we notice circlibring of the finger ends, and find that after movement the child's face becomes livid or his lips blue, the existence of ecogonital beart disease, in the absence of any affection of the lungs, may be eately asurtol. According to some observers, attacks of dyspaon alone, occurring from trifling causes, are very suspicious of this form of lesion. Louis was of equalen that "sufficialive attacks brought on by the slighbest curse, often periodic, always very frequent, and accompanied or followed by syncope, and with or without blue discolouration of the body, generally "formed reflicient grounds for the diagnosis of an abnormal communication between the right and left cavities of the heart. Again, the occurrence of inherenlists in a child the subject of old-standing heart disease, although not condisease evidence, points very decidedly to a congenital origin for the cardisc mischief.

Even in cases where all necessary symptoms are present, and the congmital origin of the heart-lesion is unmistakable, the exact variety of malfamilies must often remain amoutery. The difficulties in ascertaining the form in which the arrest of development has recurred are very great. In the case of a fully developed heart we are dealing with an organ the structure of which is known. We are acquainted with the number and situation of its openings, the number and mechanism of the values which close them, and the direction normally taken by the current of blood. In with a heart any morbid alteration of the physical signs has a definite meming; and in ordinary cases there is little uncertainty as to the cause which has given rise to it. In the case of a heart the seat of a congenital malformation, the conditions are very different. The number of openings is trafedenamed; their position is doubtful, and even the direction in which the blood is flowing can only be conjectured. In such cases, therefeet, in exact diagnosis is often impossible. Still, there are certain general rules which should not be forgotten. Thus, evene forms of malformation prove very quickly fatal. An infant whose heart remains in a primitive state, consisting merely of two cavities, will probably be dead within a wently. Therefore at a more advanced ago this variety may be excluded. Another form of congenital disease which usually has an early termination is transposition of the aceta and pulmonary artery. Children in whom this form of mulformation occurs rarely live longer than two or at the most three years. One little boy under my care with this form of leads surwind to the age of sighteen months; but the majority of the recorded. examples have died within the first twelve months. So, also, the carriety which consists in the origin of the north from the pulmonary artery is not High to be present in a child who has survited the first year.

In children who have reached the age of three years the above conditions may be excluded with a high degree of probability. At this age we should search for signs indicative of stresss of the pulmonary artery. If we can localize the normal over the pulmonary valves, and can ascertain the existence of hypertrophy of the right side of the heart, we may safely later the presence of contraction of the orifice of the pulmonary artery. In such a case there is probably also definency of the ventricular septima, with a communication between the north and the right contrible, and perlaps putercy of the arterial duct. This, it may be repeated, is the commonest form of congenited malformation. Still, other morbid contitions of which we know nothing may also be present. Patency of the formen ocale is seldern the only abnormality, but, if in a child of three years old or upwards we find the symptoms of congenital heart dismuwithout cardiae norman, or with a very faint boult limited strictly to the level of the third interspace towards the middle line, and without signs of hypertrophy of the right centricle, this condition may be suspected. In no case, probably, can a positive diagnosticated in the only emine lever

present. Proposite.—The prospects of a child, the subject of congenital unlformation of the beart, are necessarily very unfavourable. On account of the difficulties under which his circulation is curried on, and the persistent conjustion of his whole venous avaters, the child's patrition is fully soll his vitality low. He has therefore little power to throw of even triffing derangements, and is possiblely consitive to disturbing influences. In addition, then, to the dangers directly attendant upon his congenital defect, he is exposed to constant risk from the serious consequences in his safeebled state, of the codinary mimouts of childhood. Every change in the growth and development of the infant is a new period of trial. The first establishment of the respiratory function at birth, the scrumence of deriltion, the time of wearing, and all the innunceable causes of disturbance to which infant life is liable, are distinct sources of peril. To one or another of such dangers a large proportion of these patients succumb; and, as less stready been stated, hardly one-third of the whole number of cases agraines to the age of two years.

On account of the difficulty of ascertaining the eract variety and extent of the cardiac defect, the progressis during the first few months of life is especially serious. Later, as the child grows and arrives at a period when the more fittal forms of malformation may be excluded, his prospects improve; but they can easely be unit to be otherwise then understands, for a comparatively small proportion of these patients live to attain adult years.

Of special symptoms, some should be regarded with unciety. Frequent attacks of synospe are dangerous; great droustness is of understude ones; and convulsions or other sign of second arritation have a very subster meaning. According to Dr. Chevers, failure of the renal secretion, or the occurrence of albuminums, as indicating the probable beginning of structural changes in organs which have always been hungered in the discharge of their functions, is to be viewed with much approbanion.

Treatment.—The treatment of these cases consists in the solution of whe rules for the flot and general management of the patient, and in early attention to any intercurrent disorder by which he may be attacked. On second of the general must break to child, and the tendency to lovering of the temperature, the child must be warmly dressed with a flurnel band to his brilly, and should be rivided in some weekler material from heal to first. His dark should be carefully arranged so as to avoid excess of fermentally matters, such as starches and sweets; and he should be taken out of doors, whenever the weather is not too undevourable, in his name's arms or a soutable carriage. If a perambulator be used, a lost lottle to the child's test to a necessity undess the weather he warm. The patient's howels should be kept regular, and an occasional uncertain purge is useful to affect a reflect to his cargested liver. If pulpotations are violent, small does at the raftesion of digitalis may be given; and Dr. Peacock speaks highly of the beneficial offects of Dover's powder. It is important to excite the orgalize

action of the skin, which is these patients is Inbitually day. Topid builts should be given twice a day, and should be always followed by careful frictions over the whole body with the hand. Small quantities of alcohol are also of service, and may be given in the form of brandy or the St. Buplace tasmin wine. The attacks of dysperen are best treated by stimulates and small doses of digitalis and announce.

Any enterrit, whether of the lungs or bowels must be attended to without delay; and if albuminum be detected in the urine, or the renal secretion become scartly, gentle specients and directics should be at once reacted to. In cases of extreme discolorantion, the peroxide of hydrogon has been recommended; and Dr. Bultimar Fester states that given three times a day in eight-minim doses the beneficial affects of the remedy are

surv decided.

CHAPTER II.

CHEOXIC VALVULAR DISEASE OF THE HEART.

Concern disease of the heart is very common in childhood; and there are few forms of calcular lexion found in the wintt which may not be also met with in the young subject. The signs and symptoms to which such failty conditions give rise are much the same at all ages. A child like in adult, may have talcular disease without houself being conscious of discumfert or betweing to others any sign of inconvenience; or he may suffer from brouthlessness, pulpitation, general sedema, and all the other symptoms which are liable to arise in an obler person smalledy affected. The physical signs of calcular lexion, and of consequent alternation in size of the organ, also resemble very closely those met with in shall life. It is not therefor, necessary to unter into these subjects at great length. It will be sufficient to point out any peculiarities of feature conferred upon the cardiac shears

in the child by the youthful age of the patient.

Countries. - Annuary the causes of valsular defect of the heart, rhousetions takes by far the most important place. To this shouse, indeed, most of the cases of heart disease occurring in early life are to be attributed. The munifestations of theumstism in the child, as is stated tiswhere are often very trifling; and in infancy, on account of the difficulty of referring signs of distress to their true source, the disease no doubt often excepts detection ultogether. Next to theumatism, seatlating is parhaps the most common rause of endocardial inflammation. This disease is often followed be joint pains and other symptoms indistinguishable from the anatism; and chronic valvalar disease of the heart appears in not a few cases to one its origin to this exanthem. According to Bouilland, measles is also an occasional procursor of endomnlitis; and Dr. Samson has recepted a case in which both pericarditis and endocumilitis occurred a fortnight after convalescence from measles had begain. This fever, however, is no doubt a much less common cause of the valudar disease than the other maladies which have been mentioned. In certain cases, choras oppears to be a starting point for valuitor mischief. Sunctimes, without any evidence of thesmation, we find a mannar become developed in the course of the chorse attack; and it may happen that the morbid sound continues after the casation of the nervous demogeneral, and is accompanted after a time by displacement of the heart's apex and other signs of hypertrophy. Still in these and other cases where no lusters of rheumatism is to be obtained, if is possible that the endocardial lesson may still have a rheumatic origin. The tendency of this disease is to attack the fibrous tissues of the bull generally; but all need not suffer at the same time. The selection even, of the joints to be affected by the disease is apparently capricious. Some are

Acute periound endo-cardida and their consequences are considered in the shapler on sends the resolution.

attacked while others are passed over. It is surely, therefore, not unreasonable to suppose that the fibrous tissues of the heart may be implicated while those of the joints are left unharmed. In addition to the preceding, sphilis may be an occasional cause of the heart leason, for valvular imperfection is sometimes found in very young infants, the subjects of inherited

syphilis.

Attacounts on degenerations, which are so common a cause of valualization in the adult, rurely occur in early life. It once, however, imperced to me to meet with a small calcargous mass on one of the nortic valves in a little girl three years old. The mass had given rise during life to a systolic marmor which was most intense at the base of the heart, but could be heard distinctly at all parts of the closet. This child had never had resumation, as far as could be discovered, but had suffered from

measles nearly two years previously.

Bickets has been suid to be a cause of hypertrophy of the heart; but I cannot see that I have ever myself used with a case of cardiac enlargement which I was able to attribute to the chest distortion produced by this disms. When the framework of the thours is much deformed, the heart is, no doubt, forced more forwards towards the wall of the chest, and a larger arm of impulse is consequently perceptible. It is common in such cases to be able to feel the contractions of the right ventracie in the operatrium; but this sign above is insufficient proof of enlargement of the right side of the least in the absence of extension of dalmess to the right of the sternum and other necessary signs of that condition.

In some cases calcular lesions are probably congenital in their origin, arising from endomeditis occurring during intra-utorine life. In most of these cases the values on the right side of the heart only are attacked. Chronic valuable disease, according to some authors, is more common in boys than in girls; but my own experience would point to a directly op-

posite enclusion.

Morbid Analogy.-In most cases of chronic valvular disease in the young subject the lesson consists in a beading or puckering of values or either cause of insufficiency, or in a narrowing of the culcular opening. The value most commonly affected is the mitral; the next, that closing the awa Bealing of the tricuspil valve is rarely seen. This lesson, howster, occurred in a case under my care in the East London Children's Hospital. A girl agod thirtoen was admitted, suffering from general venous outgestion, cyanous, and arrestres. The child's fingers were clabbed, and her breathing was hurried with some degree of orthogonas. The patient was said never to have had rheamatism, but had suffered from messles and Stiffslim, and seven years previously last had an uttack of chores, from which all her trouble was dated. On examination there was evidence of great hypertrophy of the left ventricle, and a strong pre-systolic thrill and lead pre-systolic marmar were discovered at the apex. There was also a short disatolic thrill at the base to the left of the sternum, and a disatolic avarreur was bound at this spot. There were, in addition, signs of double hydrotheres. On examination of the body after death, the heart was found to be very large, especially transcereely, and to weigh twelve and a had ounces. The right surisde and waltricks were much distended with dark post-mortem clot; and were both dilated, the ventricle being much hypertrophied. The tricinged talse seemed to be competent, and measured three and a half inches in circum/sevence. Its edges on the auricular surher were fringed with populis which measured about one eighth of an inch in length. The left suricle was dilated and hypertrophied to a less degree

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than the left ventricle. The matral orifice was contracted to a more slit, with a circumference of one inch. The polasonary artery was very large, but the valves were competent. The nortic orifice buled very slouly by the water test, but had probably been competent during life. The large and other organs showed the usual signs of prolonged renous convention.

The heart was shown at a meeting of the Pathological Society by my colleague, Dr. Radelife Crocker. In his comments upon the one, Dr. Crocker suggested that the basic systolic manner had been probably due to a temporary incompetence of the polasonary valves, owing to dilatation of the artery from extreme congestion of the lungs. Such a ranse for palmonary organization is supported by the outbonity of Hope and Haydon. The tricinopid valve is soliton discused primarily. When the scat of thickening or other leaden, it almost always seems to be affected accordingly, being usually found, as in the above case, in connection with a serious stricture of the mitral orifice.

Adhesion of the layers of the pericardians is found in not a few cases. The adhesions are often very thick and strong; and the lymph appears to have penetrated between the muscular fibres of the heart; for these are often term in the attempt to separate the family attached screen membrane. Great hypertrophy and dilutation of the organ usually accompanies this

petralities.

It is important not to mistake for pathological bending of mises a condition to which Parrot has drawn attention. According to this observer, in a large proportion of infants who die during the first month after hirth, hematomata and fiberous nadules are found on the suriculoventricular valves. The Assuntowats are little spherical or conical function of a dark purple or nearly black colour. In size they may be so small as scarcely to be visible to the unsided sight, or may reach the age of a nellet-seed. They are placed singly or are arranged in groups. These little projections are writed earliesively on the mitral and tricingid values at the part where the tendinous cords are inserted. They lie close to the free edge of the rube, and are covered by the most superficial layer of the endocurdium. In a short time they lose their colour, and sink down into little flattered prominences before they finally disappear. They cease to be visible shortly after the end of the first mouth of life. Parcet attributes their seigin to rupture of intravalentar vessels. The Observed stellar to cupy the same situation as the preceding, and are seen as little fattered projections widered towards the base. They are composed of a dense fibro-elastic tisons. These nodules, especially the former, occur too frequently, and are too harmless in their character, to be maked as pathological lesions, for no ill results appear to follow their presence on the raises. Strictly speaking, no doubt, they are not healthy productions, but they scarcely ment the name of disease.

The effect upon the heart's substance of the morbid charges in the subset is much the same in the child as in the adult. Hypertrophy and dilutation follow, and in severe cases may reach an extreme degree. In the young subject there is great power of compensation, and we often find that the vigour of the heart becomes rapidly increased so as to make up for the calcular deficiency, and the health of the child is semingly unimpaired. In examining the heart in surly life we must not scale the mistake of attributing all normours to valvahar imperfection—that is to say, to a degree of imperfection injurious to health. It is more common in the child than in the adult to find a systolic marriage at the spec of the heart, without any other sign of regargitation through the anticulo-reatricular opening. Such a marmor may persist for years, and finally disappers without having led to any alteration in the site of the span bent, or other indication of wentricular hypertrophy. In such cases there is probably some roughning of the surface of the rules, which however, mill re-

mains perfectly competent to perform its functions.

Symptoms.—A mirratar lesion of the heart does not necessarily give rise to symptoms of discomfort; and it seems that in some children years can pass without any sign of distress being manifested on account of the earline misched. It is common to find signs of valvular insufficiency in a child who has been brought for advice on account of some count derangement quite unconnected with the condition of the heart; and even in cases where breathlessness has been noticed, it is often a recent symptom, while the enlargement of the organ indicates that the valentar lesion is of much nour remote origin. When regurgitation is slight, the increase of power quickly acquired by the heart compensates completely for the delect, and no unfavourable symptoms are noticed until dilatation occurs, or

a new attack of endocarditis aggrarates the original imperfection. Usefully, the earliest and by far the most commonly present symptom is tentilesaness. It is noticed that when the child plays at any boosterous game, he becomes very puls, and punts in an unusual manner. If very pronomiced, the symptom may be accompanied by some lividity of the lips, and pair about the chest. In advanced cases, where much dilatation has ensued, orthopness may be present, and is a syngtom of great gravity; and some times attacks of syncope are noticed. Palpitation is complained of in childlood less commonly then in adult life; but if the patient be salemic, the heart's action may be inneultaous on slight exertion. Anamia is a free quent consequence of the more argumented forms of cardinc losion. As in the adult, it is usually present if there be insufficiency of the nortic values; but even in this case it may not be noticeable as long as the child is kept quet. A little girl lately under my care, with scrtic and mittal regurgitation, always had a good colour as long as she remained in the hospital; infeed, the healthiness of her complexion was the subject of remark by those who were acquainted with the serious lesion under which she was

Hemorrhages sometimes occur. The nose may bleed repeatedly; and in older children hemoptysis may be seen, especially if there be mittal element as well as regargitation. A little gark aged twelve years, with mittal obstructive and regargitant disease and great hypertrophy of both restrictes, frequently espectorated blood. The symptom would be probably uset with more frequently were it not for the children habit of enableming all sputs brought up from the lungs. Another common competitive of the pulminary congestion induced by the valvalar lesson and the resulting tendency to catarrh, is cough. This is usually short and backing; but if house, for the reason stated is rundy accompanied by expectoration. When dilutation of the heart occurs, orders follows quickly, and the disease then presents the same distroosing features which are so familiar

to every one in the case of the adult

An occasional accident is embolism. This is sometimes the consequence of alcorative embocardities, discretegrating particles of an infective organic matter being carried off into the circulation and deposited in various organs, where they produce the consequences known in follow the presence of such infarcts. This complication, which is accompanied by high temperature and symptoms of blood contamination, has been already referred to (see page 158). It appears however, that an alcorative process

is not necessary to the separation of portions of filumous matter from the valves. We occasionally used with cases where a child, the subject of pocognised heart lessor, but making no complaint and appearing to be little troubled by its infirmity, suddenly becomes purplesed on one side from obstruction of the middle cerebral artery. The symptoms which accompany the onset of the purpless way. The child may comit repeatedly; or be second by convulsions followed by unconsciousness; or pass into a state of delirium or seen violent excitament. Sometimes the embedien takes pince more quietly; and nothing is noticed until it is found that the child's face is drawn, and that one side of the body has lost its power.

A little girl, aged six years, had been subject for sixteen mentle to shortness of breath after any exertion, and at such times to blazzous of the lips. She had mover been known to have rheumation; but, six months before her admission to the hospital, had had an attack of measles, which had been followed by whooping-cough. There was a magicious history porning to apphilis, and the child was being treated by one of my surgical

colleagues for keratitis. Her temperature was normal.

On May 10th, the patient was noticed to be dull and appearably sulky. She passed her mine and faces once involuntarily, which she had neverdone before; and her temperature on that evening was 10.6°. On the next merring the mercury registered 20.4°, and the child's month was noticed to be drawn to the left side; she could not stand; her right on was completely useless; and her right eye closed imperfectly. In addition, the was aphasis. Although drower, she could be easily roused, and the

took her food well, having no difficulty in smallowing.

On examination of the heart, a load systolic marmor was heard all over the front of the clost, and also at the back; but it was loader on the intensity, posteriorly, than on the right. In the left stillary region it was selfheard, but because greatly diminished in intensity at the posterior axillary line. In front, the pitch of the nurrour was highest at the loase of the heart, and fell perceptible towards the left sipple; but in intensity of sound there was little difference between the nipple and the upper part of the sterious. The point of maximum intensity appeared to be the palmentary valves. The spex heat was in the fifth interspace in the nipple line, and the right bouler reached nearly a finger's breadth beyond the right nargin of the sterious. There was no clubbing of the lingers nor any signs of yas nown, at least while the child was at rest. That evening (May 19th) the temperature was 191.4".

On May 12th (the second day of the paralysis), the temperature was 101.6° at 8 a.m., and rose in the creating to 101.8°. The incontinence of urine still continued and the paralysis and aphasis remained the same. The child was perfectly conscious and intelligent, and tried in win to speak. Her tengue, when protruded, deviated to the right site; the right arm and leg were perfectly flaced, and their sensibility was diminished. The muscles responded wall to the interrupted current. The temperature fell somewhat on the third day of the paralysis, but remained more elembed than natural, in the creating for several weeks, with occasional rises. Thus, on one or two occasions it suddenly rose to 102°; and on one occasion to 104°, in the evening, and then quickly became normal. During the child's stay in the hospital there was no sign of embalsion of other organs. Berught beg rapidly improved, and she regumed the power of walking but the arm continued powerless, and when discharged on August 14th, the potent was still mable to speak.

In this girl there was doubtless a congenital lesion of the heart, consist-

ing in part of narrowing of the polynomery artery, and, as a consequence, the right side of the heart had become hypertrophied. It is probable, also that there was insufficiency of the natral valve, from endocarditis occurring after birth; and that it was from this source the curbolins was derived, which had become arrested in the middle corebral artery.

In another case, a boy, agod clower years, who was suffering from stemsis and insufficiency of the mitral orifice, was taken suddenly with paralysis of the right side, combined with difficulty of speech, while recovering from

an attack of small-pox.

It is not always in the arteries of the brain that the embolus is arrested.

The fragment may lodge in the kidney, producing albuminaria; in the
liver, sensing enlargement and slight jamedice; and in the spicen, leading
to perceptible swelling of the organ. In the latter case, according to Dr.
Ger, the infarction is peculiarly liable to be associated with fever of the
lactic type, without the endocardities to which it is owing being necessarily
alcorative.

There is one other result of embolism which may be noticed, although its consequences are not as manufately obvious. Ancarismal dilutations in the child are now known from the researches of Dr. J. W. Ogle and others, to be due to this accident. Accurisms scaled on the small arteries of the brain, leading to fatal bestor lage, sometimus occur in young subjects, and are doubtless to be attributed to plugging of the most by they takens. The same condition is also occusionally seen in the larger arteries, as the external disc.

Besides embolism, other occasional complications may be observed in race of heart disease. On account of the rheumatic disposition of the majority of such patients, evidences of that constitutional state are often observable. Skin eruptions, especially eczena, erythona, and articitia, are enance; plearisy and personelitis are not unfrequent besons; and joint pains are often complained of. Another common complication is some form of nervous decangement. Chores is liable to occur in the imbrects of leart discuse; and Dr. Sanson has remarked the occasional association of epilepsy with cardiac mischief. In some cases, impairment of nutrition is the only evidence of ill builth. A little boy, aged seven years, was besught to the hospital with signs of mitral stemmis and insufficiency. Still, the boy laid no cough, and did not appear to be breathless on exertion. For six mentls, however, he had been persistently wasting, although, with the esception of occasional abdominal pains, there was no evidence of digestive demagement, or other sufficient same for the impaired state of his nutrition. In some cases the wasting is combined with america, which may even reach an extreme degree.

The most common form of heart lesson met with in childhood is regurgation through the mitral scilice. Next in order of frequency is regurgated combined with constrictive disease. Then follow a combination of constrictive and regurgitant disease of the sortic orifice, and constrictive disease alone. Stenois of the mitral orifice, unaccompanied by insufficiency of the valve, is not common in the shild; and regurgitation through the sortic orifice is far more than it becomes in after-life years. It was be unaccessary to describe the physical signs and special symptoms connected with these more lessons, since they do not, as a rule, present my peculiarities dependent upon the early age of the palant. With regard, have see, to nortic regurgitant disease, it may be remarked that this form of light lesson, as her been previously stated, is not always accompanied in the child by any striking paller of the complexion; nor is it often indi-

ented by any marked alteration of the pulse. The pulse is regular, and in weakened by raising the hand above the head; but the characteristic humaner like heat of the artery is usually abount. Moreover, the pulsation of the more superficial vessels, although visible if marrowly looked for, in

seldom sufficiently marked to catch the eye unsought.

Translations.—When death occurs in cases of heart disease, during childhood, the fatal event is often brought about by some inflammatory complication. Children so afflicted are more weakened than is the case with a healthy subject, by casual decorpements, and have less vigour with which to bear up against a serious disease. When death is due directly to the heart lesson, it generally occurs in cases where the pericardina has become firmly afferent to the substance of the heart, and has led to serious interference with the notrition of the organ. The cavities become ground diluted, and the fueble walls are no longer equal to the discharge of their functions. Great congestion of the longs follows, and there is general states of blood in the systemic venous system, with its inevitable rease-quences. In most cases of death from cardine dropsy, the pericardina is found firmly albertent to the heart.

Sudden death is not very common from cardiac lesion in the child. When it takes place it is probably the result of clotting of blood in the large vessels of the heart. A little girl was under my care in the East Lordon Children's Hospital for chores, which had followed closely upon an attack of sub-grate rheumatism. The child was low and depressed, and her conplexion was markedly anomic. The chowie movements were bilateral, affecting the face, tongue, and eyes, but were only moderate in degree. When she took food into her mouth, the muscles of deglinition need conunlawly. On commination of the heart there was a lovel bellow marrier at the apex, conducted well into the axilla. This evidently dated from some proctous attack of rhounstism. During the girl's stay in the lowpital, fibrous nodules were developed on the tip of each spinous process of the vertebra. The child was treated at first with chloral afterwards, with quinte and iron. She took three ounces of port wine daily. In spite of the treatment, she wooted, and seemed to grow weaker. After a time, as no improvement occurred, the patient was removed by her friends; and we afterwards heard that she died quite suddenly on the following day. No post-more recommended was obtained.

Sometimes the clotting takes place more slowly. A little boy suffering from natral regargitant disease, with much dilated hypertrophy of the left contrible, was noticed for two days to be means and restless, with some dislocated manner. On the third day be use seized with dropnous, which became gradually more severe. The child grew excessively restless, and threw himself about in his bed. When I saw him (at 3 r.m.) be was sitting up in bed, supported by the nurse. His eyes were staring and wild-looking, his face much congested, his lips and checks purple, his finger sale blue. The breathing was laborious, and the nares acted. The heart's action was excited and foreible, but the pulse at the wrist was excessively weak. The boy was very restless, constantly changing his position and throwing his same about. He was quite sensible, and made no complaint.

Six leaches were applied to the region of the heart. They bled freely, but the symptoms continued, the lividity despends, and the boy-field in a few hours. No examination of the body was allowed; but there can be little doubt that death was occasioned by one-sources clotting in the heart or large vessels near their origin.

Dispress. The existence of a valvatar lesion of the heart is ascertained

almost as readily in the young subject as it is in the adult. Even if a child cry during the examination of his chest, the heart sounds can usually be perceived during the short interval of inspiration. In most cases, however, if the patient be not frightened by absurptions of movement, and if he be allowed to play with the stetlesscope before the instrument is applied to his chest, a young child will submit to the process of anscultation with-

out any complaint.

миресини.

When a marmor is detected, we have to decide if it he of recent origin. A recent marmor is soft and of low pitch; but as time goes on it becomes harsher and its pitch rices. If the lesion affect the calibre of the critics at which it is generated, or interfere with the closure of the valves, it soon hads to some embrgoment of the heart and alteration in the position of the spex-best. If, in a child who is suffering from acute or sub-acute rheanation, we detect a hard, high-pitched, systolic marmor at the apex, we may conclude that the cardiac lesion dates from a period considerably anterior to the existing illness. In noting the position of the spex-best, and its relation to the nipple, it is important to reasonaber that in many shifteen the nipple lies at a lower level in the close than is the case in the almit. Instead of the fourth rib, it is often placed on the upper border of the fifth. In such a subject the acoust position of the spex-best would be in the fifth interspace just below the nipple and slightly to its inner side.

In every case of indisposition in the child, however apparently trifling it may seem, the heart should be carefully examined, for, as has been said; a minutar leasan may be present without giving rise to symptoms of discomfort, and evidence of discomfort of symptoms which should at least scrite suspictors. Attacks of pulpitation in the child are less contactly than in the adult the consequence of functional decomponent or symposic discover, and, if present in a marked degree, should suggest anchor mischief. Frequent epistaxis in an assemic child is not uncontactly the result of matrix discuss; and if a child who is not meaning becomes beautiless after exertion, especially if the shortness of bourth is accompanied by lividity of the lips, the symptom should excite the strongest

The presence of a marmor at the spex is not in itself sufficient evidence of a serious lesion. Heart unresors in children not uncommonly disappear. This statement is true not only of recent soft marmors, such as are heard in cases of chores or scate rhounstion, but also of londer and harsher marmors which are known to be of longer duration. In all cases where a larsh marmor is detected, signs of bypertrophy of the left contricle should be searched for. If no enlargement be discovered, and the apex-beat remain in its normal position, it is highly improbable that are serious substant detect is present (see page 163). The spex-beat of the boart may, become, be in an abnormal position without the alteration in site being the result of endocardial discuss. The causes which lead to displacement

of the regard are referred to abarefore (see page 402).

Again, a basic heart mormor may be produced by causes acting from without. Pressure upon the large vessels by caseous broadial glands may so narrow the channel as to give rise to a systolic mornour. In these cases, however, other signs will be found, explanatory of the abnormal phenomenon (see page 181).

The detection of a cardiac mornour will sometimes furnish an explanation of symptoms which would be otherwise obscure. In all cases where hemiplogia occurs surfacely in a chifd, attention should be at once directed. to the heart. But more pyrexis is semetimes caused by embolism in other organs, where irritation and disturbance give rise to less characteristic symptoms than are found when a partion of brain is suddenly rendered useless. In cases of observative endocumbitis, continued high temperature, and a condition bearing a close resemblance to enteric fever, may be induced by the accident; but even when the frequents of organic matter thrown off from the valves have not this indective character; an irregular pyrexia may be set up. Careful search in these cases will often discover some local symptoms suggestive of the presence of an infleret. The above may be found to be swellen; the liver may be enlarged, buth slight justdice; albuminum may occur from embolism of a kadney; or peteclasmay be noticed in the skin from obstruction to the circulation through the cutimeous capillaries. In all these cases the source of the mosthat will be discovered on examination of the boart.

Prognous.—As long as the cardiac lesson gives rise to no symptoms, the prognous is very favourable. If a metral assessor, although burst in quality and high in pitch, he accompanied by no signs of hypertrophy of the left ventricle, there is reason to hope that it may altimately disappear. If signs of calargement of the heart are noticed, we examet expect that the valuate lesson will be recovered from; for a temporary dilatation of the left ventricle, such as is upt to occur in chlorotic girls. I do not think is common in the child; but as long as the health of the patient seems in suffer in no way from the disease, little apprehension of immediate danger need by entertained. Directly, however, my symptoms are noted indicating impairment of unfailus or obstruction to the circulation, there is come for anxiety. Serious breathlessness, littlifty on alight execution, marked magnin and perceptible loss of flosh, are all unpromising symptoms.

The prognosis is more favourable in cases of mitral insufficiency than of mitral stenosis. If the mitral disease has led to tricuspid insufficiency, speedy dilabetion of the cavities of the least may be anticipated. When some of dropsy begin to be perceived, the danger is really imminent. By judicious treatment and careful nursing the end may be postpound, but

cannot in any case be far distant.

Attacks of rheamstem and chorce, bring upt to approvate the solutions, are greatly to be decaded; and all forms of inflammatory rheat affective, as they increase the work of the heart, are likely to have injurious consequences. Embelsion is a very serious accident. If the authors todge in the middle corolinal artery and produce beniplegia, the complication, although it may not destroy life, may lead to permanent impairment of movement of the limbs. In the second of my cases of certical embelsion referred to above—a boy eleven years old—the patient, two years after the attack of puralysis, had very little use of the right arm. He could walk however, and had recovered the power of speech. If the brain be un-affected, and the embelsion occur in other organs, the resulting irritation and disturbance may prove fatal, even although the fragment detacted from the valve be destitute of any infective property.

Prostured.—In cases where a salsular lesion exists without producing any sign of inconvenience, there is no remon for special medication. The parents should however, be contioned to spare the child all unrecessary fetigue, and to prevent him as much as possible from taking part in vishal exercises. Excitement of the heart should be prevented. In the case of a schoolboy this is, of course, a matter of great difficulty; for, as long as the child is untroubled by unway sensations, be cannot be coprinced of the necessity for quiet. Little girls are fortunately less addicted to beingwise games. Measures should be taken to prevent fresh attacks of risonation, and the child should wear wooden underclothing all the year round.

Directly pulpitations, breathlessness after exertion, or ansum, begin to he noticed, more active measures must be taken. Too energetic action of the heart must be quieted by digitalia. This valuable drug has aboves accracl to me to be well borne by young patients. The best form in which it can be given as the infusion; of which a child of ten years old will take, refront any inconvenience, two desclars three times in the day. On necourt of the importance in these cases of keeping up a gentle action of the towels. I usually combine the remedy with a mild operiors and a vegetable better. One denotes each of the infusions of digitalis, sense, and calemba, given three times a day before meals, is often followed by great benefit; er, if desired, the proportion of digitalis may be doubled. If the digestion is weak, a few drops of dilute notric acid may be added to the draught. When my signs of anomia are present, iron should be given is addition. This medicine is best administered separately, and I prefor the environment of irea. Your cases to all other forms of irea. Your or free grains of the salt may be given in glyperine directly after each reed

Great cure in necessary in the matter of diet. The child is not to be corrianted with food because he is weakly and seems to be losing fiesh. His meals should be small, that his stoungh may not be oppressed; and the greatity allowed should be such as his digestion can bear and his tissues really assimilate. If the blood be overcharged with superabundant material which is useless for purposes of nutrition, extra work is thrown upon the exerctory organs, whose duty it is to eliminate it from the system. It is well to only four small meals in the day, of which one may consist of meat with vegetables, a second of a piece of fish or an egg, and the two-- others of milk and beend and butter. The quality of the food should be also attended to All rheumatic subjects have a special tendency to flatalence and acidity; and this tendency is favoured by excess of starchy matters and awasts. It is often remarkable to note the immediate improvewent which takes place in the condition of a child who has been purspered and overfed "besome he is delicate," when these simple rules are attended to.

When dilutation of the heart occurs, and leads to stass of blood in the systemic urins and general sedems, discretics are indicated. This condition must be treated in the stald upon the same principles as are followed is the case of the adult. The kidness must be stimulated to not by the scenates of potash and ammonia, spirits of introus other, juniper, fresh broom tops, squall and digitalis. One especially valuable discretic in these time is the trusture of conthamles. I have seen a formidable amount of tropay clear away completely in a child of nine years old under the inflaonce of ten drops of this remedy given three times a day, after other tions had been used without making any impression upon the effection. haw tried the resin of copasts, but the drug has proved of little service. is by hinds. Drs. Leech and Brackenridge speak highly of the value of main. The action of discreties is greatly aided by day-cupping the region of the kickneys, and afterwards applying a succession of hot limeed need peultion to the losus. For apericate, I peefer the compound july powder to risterium, which has a very uncertain action on the child. Stimulants are of service, and unsweetened gin may be given in suitable doses as recared If it be necessary to punctum the legs, Dr. Southey's common

should be employed; and Dr. Goodhart's suggestion that these instruments should be steeped in some boiling germicals before being used in

one of distinct peartical value.

When embolism occurs in a cerebral artery, producing beneglegia, the bisulphite of hole may be given in desce of ten or fifteen grains three tasses a day. This drug has a marked action in repolly relieving the pull-billis which is so common in women lately delivered; but my experience is too small to enable me to speak confidently of its value in the cases above referred to.

Part 8.

DISEASES OF THE MOUTH AND THROAT.

CHAPTER 1.

THE DEBANGEMENTS OF TEETHING.

Ter period of actice development of the milk teeth is always a time of final for the young shild. Many an infant seems healthy and sturdy upto this point; but when the time of teething arrives his nutrition falters and he begins to fail. On this secount mothers, if they do not look upon the cruption of the teeth us a discuss in itself, are at least in the habit of attributing every complaint which occurs during the first two years of life to the influence of this normal physiological process. In the medical proforce the riews held with regard to the influence exercised by feething upon the infant economy were at one time very similar. At the beginning of this century, dental development was looked upon in one of the chief curses of death in the infant. One author closes it amongst the latal discases of childhood. Others estimate the mortality from this cause at onebeth our sixth, our third, and own one-half of the whole number of duchs under the age of two yours. Even in the present day it is common to find identition included in the etiology of almost every variety of nervous discolar occurring in the child.

The period of dentition coincides with that of the most setion physical progress. Towards the end of the first year of life the following apparatus of the intestines is undergoing considerable development; the corollogical system is passing through a stage of rapid growth and high functional activity; and most organs and tissues of the body are in a state of active change. The evolution of the teeth is not, therefore, a solitary anstance of developmental progress, but corresponds to a similar activity of greath in other parts. No doubt, a period, such as this, of quick transition is a period of exceptional associativity. Demagnosias of function are very liable to occur; but to attribute these enclasively to one of the many physicagical processes of which the body is the sent, merely because the process is external and visible to the eye, while the others are internal to it emmed be seen, is to generalize bastily, and from very insufficient

this. There is another reason why, at the time of teething, various forms of

illness are liable to arise. The atomatitie so commonly induced by the advance of a tooth in the guas, is a course of porexia. A feveral child in very susceptible to challe, and is liable to be disordered by the irritating influence of unsuitable food. In such a state, also, the digestive power of the infant is weakened, so that the food on which he has been through may cease to agree. Demagements of the stounch and bowels, this induced, if prolonged as they often are by improper treatment, cross writes interference with nutrition and not uncommonly bring the infant to the grave. To say, however, that in such a case the child dies from teething is incorrect. He dies from making trition, brought on by persistence in forcing upon him food which is no food, because he cannot dignit it. His diet, method of supplying him with the neurishment he requires, ferrence, turns arid, and sets up caturdal disorbors; so that at hat he seconds. worn and exhausted by purping and starvation. The losseness of the Lowels, which is so upt to occur during the period of trething cursor to attributed with my justice directly to the process of dentition. The frequent child is attacked by intestinal cutarria, because his body for the time is more than worstly enceptible to the influences which are capable of exeiting that demangement; but teething is the cause, not of the purpose, but of the fever. So, also, in the case of pulmonary controls, which is were subjects is a common accompaniment of the susption of each separate tooth, it is to the pyrexia, and not to the accidental cause of the pyrexia. that the demagement is to be sagained. In support of this view, if may be remarked that diarrhora is a more common complication of dentition daring the summer months, when the weather is little to sadden and enerpertod changes, and the temperature varies rapidly while the dress of the child remains the same; and is less common during the winter, when more care is taken to gamed the child's body from the cold. Again, the pelanemary accidents are more common in raw, damp weather, at the times who such disorders are especially apt to prevail.

On account of the early age of the infant, and for the reasons which have been given, the first deutition is more liable than the second to be accompanied by serious disturbances; but even in cutting the second copy of teeth, digestive troubles are likely to occur, as will be afterwards de-

norther).

The first deathton begins under normal conditions in the middle of the first year, and and a toward the beginning of the third. The emption of the milk teeth may, however, be anticipated or delayed through individual peculiarity, or some abnormal constitutional state. Thus, consecretationally occur in which the child is found to line a tooth when be is born. Such teeth are usually sharp and book-shaped, and are often loose, consuling merely of the current of the tooth embedded in a feld of the gum. Hence has described mother variety of congenital tooth, which is firmly fixed in the norder. The tooth is destitute of annual, and looks yellow, with a rough surface. Henceh attributes the emption to a perioditis of the states of border, which pushes the realimentary tooth outwards by smiling and exadation within the socket.

It is not uncommon for teeth to begue to be cut at the third or feath month; but in such cases the emption of one or two teeth is smally followed by a pause, and the continuance of the process is deferred until the usual age. In certain states of the constitution, destricts is early. Thus, children with inhercular tendencies, or who suffer from a sephilitic cachesis, cut their teeth early, as a rule. In rickets, on the centrary destrtion is always late, and in exceptional cases no tooth may appear until the end of the second or beginning of the third year. Ordinary malastrition, when the child has not become sickety, does not interfers with the evolution of the milk beeth. In chronic diarrheau, when the child is very weakly, and such wasted by constant purping. I have often noticed with surprise that the natural evolution of the teeth has been in no way returned by the

distressing complaint.

In an ordinary case the nalk teeth uppear in the following order:
Lower central incisors, upper central incisors, upper lateral incisors, lower
lateral incisors, first molers, canines, back molars. Of these the first
should appear between the except most minth mouth. At twelve morells
oil the infant should have cut eight teeth, and the four first molars should
be in process of evolution. He should cut his eye-teeth (number of the first
crop (twenty) should have pierced the gum soon after the coal of the except
pair. The beeth are usually ent in pairs; and after the completion of
each group there is usually a purse before the evolution of the next group
begins.

The onler given above, although that which most commonly obtains, is yet often departed from in children whose health is perfectly good. May belies out their teeth "cross," as it is called. The lateral incisors scartines appear before the central front teeth; the first molars may procede the lateral incisors; the last molars may procede the canines; and in a few instances I have seen a conine botch out before any of the first molars have appeared, but this last exception is a very rare one. Sometimes in rickety children, when dentition is greatly returded, the first tooth to appear is one of the first molars. Thus, a rickety little boy under my care out his first tooth come of the first molars—at the age of two years. Another out his earliest tooth—also a first molar—at fifteen months.

Although the full number of the milk teeth when dentition is completed is twenty, this number is not always reached. It may happen that certain toeth never appear at all. Thus, a little girl under my care, agod two years and nine months, was seen to have all the milk teeth except the two upper lateral incisors. On the left side there was a narrow space remarring between the left middle incisor and the carine; but in this space the gum was strop, and there was no sign of a tooth. On the right side, the right central meiors and the adjoining comine were in contact. In the some way I have known the whole four connex to be absent. In some case the pseniarity is a hereditary one. In a case which came under my notice the left lower leteral incisor was venting in a little girl of two years til. The same incompleteness of the milk teeth had occurred in the mother. This hade had three other children-all boys-whose early dentition had presented no deviation from the normal type. It is containly curious that the irregularity which had occurred in the mother should have been reproduced in the only one of her children whose sex was the sums as her own. It is important to be aware that incompleteness of the first crop of teeth does not necessarily imply that a similar inregularity will be met with in the second. Mr. Tomes, in his work on dental surpery, refers to the case of a little girl who cut none of her milk teeth, but in whom the permanent set appeared as much. Semetimes, instead of too her too many milk teeth are developed. A little girl between two soil three years old lately came under my notice who had the perfect incisors in the lower year.

The process of Austition is much major in some children than it is in others; but it is difficult to assign a reason for these differences. The facility with which the teeth appear scenes to be dependent more upon individual psculiarity than upon actual beddily health. Teeth ext easy are not always cut easily; and delayed dentition is not always, nor even usually, tromblesome. A perfectly healthy child may cut his teeth with much age fering, although fully up to time; while a nickety shild, although very late in teething, may suffer no inconvenience at all in the process.

Spapeous.-The symptoms which accompany the emption of the will tooth are very variable. Sometimes no signs at all are noticed, and nothing is known of the matter until archlent discovers the presence of a took through the gons. Usually, however, the infant is restless and invitable; he flushes and is feverish. A copious surretion of salita occurs, and the child "dribbles," the finid flowing from his lips over his chin. At night he is disturbed in his sleep, and in the daytime may be noticed unlimb to give a little cry, or contract his features as if in pain. He also make "numebing" movements with his jews, snoks his lips, and gives overy indication of unensiness in his gams. Most writers on this subject, follower Hippocrates, describe a painful thelving sensation of the gum, which is said to be present in these cases, and whether or not the scusation is correctly described as an itching, there is no doubt that it causes distress, and appears to be relieved by gentle frictions with the finger or my other smooth object. On examining the mouth, the gam is found to be swoller and cushiony, and sometimes, shortly before the tooth appears, is very beasand hot. At this time, friction, which before was pleasant, becomes very painful. The gum is evidently tender, and the child may be secretized seen to held his mouth helf open, as if he feared to close his just. All the symptoms subside when the tooth pierces the gum.

The prexis of feetling is very arregular. It is often higher in the morning than at right, and is liable to rapid variations. Thus, a little boy, aged aftern mouths, had eight teeth, and was cutting his left lower molar. At 6 a.u. his temperature (in the rectura) was 90°. At 10 a.u. it had risen to 103.8°; and at 10 r.u. was 102.2°. It gradually fell during the night (being taken every four hours), and at 10 a.u. on the following morning was 100°. It then rose again to 102° at 6 s.u., fell to 98° at 2 a.u. (third day), and at 10 a.u. stood once more at 103.8°. A good due of caster oil was then given, and the temperature at once became normal.

In a teething infant the measury often registers 104° at 8 or 9 cm; indeed, in a young patient such an amount of fever in the morning is slow a circumstance of great suspicion, and should at once lead us to ensure the state of the gums. Few diseases, at this early age, cause so much present at this period of the day.

The symptoms which have been enumerated do not necessarily heald the introducts appearance of the tooth, but will be often found to came and go—waxing and waning in severity, and sometimes subsiding altogether, so that the infant passes through alternate periods of suffering and case for some days, or even weeks, before the tooth comes through the gua-Usually, more distress is experienced during the couption of the comes tooth than at any other period of deutition.

Complications.—The symptoms just described may be looked upon as natural to the process of teething. In many cases, other symptoms are noticed, supressure of derangements which do not follow naturally from the evolution of the teeth. They arise as accidental troubles, and must be attributed to the ordinary causes of ill health noting upon a body in a state of irritation and fever, and therefore peculiarly succeptible to their urbs once. These are stomatitize and aphthic; repeated constiting or distribute.

more or less prolonged, from enturch of the strength or boxels; cough from polynomary cutamb; etitis; surious forms of skin disease, and cermin troubles of the nervous system, such as equinting, convulsious, etc.

The elements is of the simple form, as a rule, and consists of an crythenators redices of the nuccus membrane of the game over a considerable grea. The affected games are somewhat weeken, and are had and tender to the touch. If the bunderness is great, the child may refuse to such the bettle or its mother's breast. High fever always accompanies this complimation. The alterative form of atomatities is also sometimes present, and

ha the characters described in the following chapter.

Attacks of comiting and discrebes, from soute gustrie and intestinal esturit, are common in teething children. For the reasons which have bern stated, infuris, whether teething or not, are stall times liable to ready disturbance of indigestion; indeed, at this age, directive troubles form a large proportion of their ailments. Therefore, vomiting is especially apt to occur when the stomach is irritable and weak from pyrenia, unless the chil's diet be promptly medified to mit the altered state of his digestive organs. In the same way, whether from the irritation of undigested food, or the ameliaconess of the heated body to even trifing variations of the esternil temperature, purging of a mild character is a very common sympton. If the teeth are cut in rigid encassion, a losseness of the bowels may prevail to a greater or less slegree during the whole period of dentithen. If this looseness remains confined within moderate bounds, it may do no apparent harm to the patient; but it should not on that account be allowed to continue, for at any time a severe attack of inflammatory diarthree tray supervene, with not improbably fital consequences. This serious areident is especially liable to occur in hand-fed balsies, who, while they are effering from intestinal irritation, are naturally more than commonly sensitive to the disturbing influence of undirected food. The ordinary durbon of testing consists of green or yellow matter, with small lamps. of earl. It is often passed with straining, and its passage is preceded by groung panes.

In cases of chronic discrison, the influence of teething is often distinctly practured. The irritation of the guns set up by the advancing tooth tends to maintain an irritable state of the bosels, so that, although the actual purging may be readily kept under centrol, an intolerance of milk and the formentable articles of food continues to prevail, and is very difficult to owners. Often in such cases, in spite of the most careful disting, attacks of leasuness are frequent; the child remains weak and low, and seems to make no progress towards recovery. When, however, the tooth appears, and a passe seems in the process of dentition, immediate improvement is seliced; the motions become healthy, and fiesh and strength begin to re-

DATE.

Personary cuters, with a hard cough, is a common complication of testing; and the high force by which these attacks are accompanied may take great anxiety, as it gives a fulse appearance of gravity to what is really a triffing ailment. The child coughs a more or less hard cough, which may even have a "croupy" sound; his naives dilate in inspiration, and the testilling is hurried. His mouth is hot and day, and dribbling, if it had been previously noticed, ceases when the fever begins. The child as tray irritable and restless; his tongue is forced, and his bowels are conined. The catacrh is usually relieved by appropriate remedies; but if the last taken, and the child be exposed to cold or draught, a resily seture bronchitts or broncho-paramounis may be induced. Onlie is a not uncommon secident at this period. Dr. Woales has explained the mechanism by which inflammation of the middle our is produced. Irritation is corresped from the inflamed gum to the offergangian, and is then deflected to the smoot supplying the tympenic membrane. As a consequence, this membrane becomes sentely congested, giving rise to severe pain; and if the irritation persist, it may lead to inflammation and supportation within the tympenic cavity. The membrane soon becomes perforated, and a purnicut discharge issues from the external malitary mentus (see outts).

The forms of also discuss which are liable to arise in teething infacts are the crythematous rashes and expensatous aroutions. The former are usually transient, and readily enlands; but the latter may special over the greater part of the body, putting the child to the greatest distress from

constant itching, and obstinately resisting trestment.

Of the across duonfee which are upt to occur at this period it is very difficult to say how far they are due to the actual process of teething or to what degree the mobil development of the cerebro-spinal system is more able for these accidents. In some impressionable infants a very tense, swellen gum may. I believe, like any other variety of irritation in any part of the body, he sufficient to induce an sciamplic affect. In many case the contradicts is probably to be assembled to obitis, set my by the state of the gum. Tronoscan has suggested that a high degree of fewer may be in itself a sufficient cause for the nervous trouble; but I have never met with a case of convaduous in the child which I could attribute to this cause sings, for the initial convulsion, which is so common at the beginning of many acute discuses in early life, is probably owing to other causes than more elemition of temperature. It is easy to understand that an ascitable infant, whose whose nerrous system is in a state of disquiet from pair, disturbed sleep, and continued dental irritation, may have convulsious induced by a very slight additional stimulus. In such a clold a luncy of indigestible food, or a seylulous neeline in the borels, may increase the irritation to an irresistible degree, and it is probable that some such secondary cause often has a share in the production of the echaptic season.

In the account of entition, the coder in which the teeth appear is more regular than in the case of the first. The eruption of the permanent tests begins between the ages of five and a half and seven your with the appearance of a permanent noder behind the last of the temporary tests. Next come the central invisors about the eighth year; the lateral invisors at about the minth; the first and second bicospids in the place of the temporary mohers at the tenth and eleventh; the carries between the twelfth and thirteenth, and the second makes at about the time of puberty. The last four permanent mohers are cut later. The only exoption to the above sequence that I have noticed in that in rare cases the cruption of the central incisors procedes the appearance of the early solves.

In certain exceptional cases the milk teeth have been known to be ritained into adult life. Some years ago Mr. Nepier showed at a mosting of the Boyal Medical and Chirurgical Society the east of the mouth of a young lady of twenty-fire in whom the milk teeth were still retuined, with the exception of the upper central incisors. The same abnormality had occurred in the case of the lady's sister, and it had been also noticed in one of the mother's relatives.

The beginning of the second dentition in delicate children is often accompanied by signs of gustrie or intestinal irritation. The child seems very sensitive to-changes of temperature, and is subject to attacks of fear pass of the bowels. He is often irritable and restless; looks pale, with dark circles round his eyes, and sleeps budly at night. His stools often contain mness in large quantities. Such clinking are very liable to the as-called "night terrors," which in all cases, so far as my experience has extended, are nearly attacks of nightness, the consequence of indiposition and adulity, and can be at once arrested by diet and suitable treatment. It however, care be not taken to modify the cinhl's diet to suit the degree of dignative weakness, the derangement continues and the patient begins to lose flesh; indeed, in some cases a great degree of conscistion is marked.

Pageson.—The clinical importance of the first dentition consists in the frequency with which the process is found to complicate all the various derangements and discusses to which infuncy is liable. The pyrexis induced by teething often inferes an element of obscurity into a case which would otherwise present little difficulty. In infants we must be always prepared for this source of confusion, and should never forget to assertain

the state of the gums before bringing our examination to a close.

In the case of pulmonary catarris attacking a teething child, the combination of fewer with cough, sapid breathing and active sares, suggests the presence of passimonia. It will, however, be noticed that the child tion not look ill; his cough is looser and less backing than the cough of postmenta; his point respiration ratio is not perverted, and the history is not that of indimenation of the lung. In searching further for a cause for the pyrexia, the gums will be noticed to be tense and swellen, and the source of the fever is immediately explained. We must not, however, in all cases where the gums are hot and uneasy, at once conclude that they are the sele cause of the symptoms noticed. It sometimes happens that serious carebral disease occurs in a teething child; and if mistaking their usture, we attribute the nervous symptons to destal irribation, we make a mistake which the friends of the patient are not likely readily to forget. Torrefore, nervous symptoms occurring in the course of teething must in some one receive careful attention. Headache, mild delinum, vertigo, startings, twitches, and convolute attacks are so commonly the consegimes of general nervous disturbance from any cause, that they have lost all claim to be considered special numificatations of cerebral discuss. It however, the bowels become obstinately confined, the pulse slow and aregular, the breathing unequal and sighing; and if, in addition to those suspicious symptoms, we notice that the child frequently frowns and avoids the light , that he is suffen and drowsy, lies with his eyes half closed, and scenns out suddenly as if in pain, we have every reason to fear the occurtrace of tabercular meningitis. In all doubtful cases the effect of a mild apment should be fixed. Caster oil brings rapid relief in most of the disbirhuncos of a teething child. Therefore, if the acryous symptoms disappear after the operation of this simple remedy, their purely functional origin is M. Once apparent.

In the case of diarrhess from intestinal enterts occurring in a testing shild, there is not the same source of fallocy as in the other complications, for in ordinary cases howevers of the bowels at once causes powers to

enhable.

Treatment.—The derangements which occur during dentition must be brailed upon ordinary principles, and the reader is referred to the various displars devoted to these derangements for information open this subject. It may, however, be remarked that it is repectally important in a teething shill to keep the belly warm, and to avoid all sources of chill. Also, that

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it is essential, in all cases where signs of gratric or intestinal disturbance are noticed, to reduce at once the quantity of fermentable food which is being taken, as fermentation and acidity are the earliest consequences of the cataerbal demograment. In cases of diarrhon there should be no hon-tation about arresting the looseness as quickly as possible. A dose of easter oil should be given; and if the purging do not come after the action of the specient, it will yield readily to becauth (gr. x-x.) with security chalk powder (gr. v.), or to one-gmin doses of oxide of rine. If from is high, or the gum seems to be especially painful, great relief will follow m sperient dose of castor oil. This at once reduces the pyrexis and calms the tension and uneasiness of the guns. The irritation of the secolor and inflamed gum may be reduced almost immediately by rubbing the afflicted part with the finger, moistened with fresh lesson-juice. Some sunring is at first excited by the application, and the child's wallings are increased; but after a few minutes the smarting subsides, and with it disappears much of the discomfort previously experienced. This practice is common I am told, aurouget the native nurses in the Cape Colony,

The practice of lancing the gum, which at one time was looked upon as a sovereign remode for all the disorders incident to the period of teething, has now but few supporters. The only condition for which I should bell inclined to have recourse to it is that in which convenies attacks occur in a child whose gums are very tense, swellen, and tender. In such a cose, where it is our object to remove all sources of irritation, the gums may be lanced freely with advantage. Lancing the gums with any view of thereby hastening the evolution of the tooth below, is, of course, putting the child

to very hanceessary point.

If during the accord destrices, signs of digestive disturbance are noticed, and the child looks pule and begins to waste, and especially if the emptons called "night terrors" are noticed, the howels should be acted upon by a mild speriout every three or four days; the diet should be regulated, restricting the quantity of farinaceous food and sweets (especially forbidding potatoes, posidings, cakes, and fruit), and the shild may take six or eight grains of homeboaste of soda two hours after each ment. I have never seen a case of "night terrors" which has resisted this treatment.

CHAPTER II.

STOMATITIS.

Israers and young children are very liable to demagement of the nacommonless lining the interior of the mouth. Partly on account of the initiation of the gimes resulting from doubtion, partly on account of the ready sympathy which exists between the membrane lining the boson moity and that of the digestive apparatus with which it is continuous, an infamilitary condition of the mouth is a common disorder. In a buildly shild the besien produces little more than passing discondort, and readily subsides. In a cachectic or weakly subject the demagement may be more sensor, and in some cases the inflammation passes into accere ulceration or even gaugement.

The simple form of stormittis, which is often a complication of teething, has already been described. In the present elapter two other varieties of disease resulting from inflammation of the nancous membrane will be considered, viz., aphthons or following stormittis, and ulcerative stormtitis. The following chapter will be devoted to a serious and often fatal

discuse-gaugeene of the mouth, or concrum one.

APRICOUS STOMATITIS.

The derangement called aphtheus shounding (follicular stomatinis or aphthe) is a common source of inconvenience to young children. It is induced almost invariably by derangement of the stomach and is often seen during the progress of the first dentition—a time at which so many forms of gastrie and intestinal disorder are apt to arise. Actual irritation of the macous membrane of the mostly may also give rise to aphther; for this live who are over indulged with sweets often suffer from this com-

plaint, even if the digretion is unimpowed.

Symptons.—Aphilia consists of a vesicular eruption of the minuses assubance of the mouth. Purely gray or yellowish vesicles appear, varying a size from a park head to a millet-seed. They are circular or oval in stape, and their base is surrounded by a red areals. After two or these days the vesicle ruptures and a round ulter remains. The base of the aleer is grayish in colour, from the presence of a sebaccous secretion; the edges are thickened, and there is redness of the nuccous numbrane surrounding the sore. Under appropriate treatment the ulter soon heads, and the complaint is at an end. The number of the aphthic veries from two or three to fifteen or twenty, or even more. They may occupy any purt of the miners membrane, but usually appear first on the inner side of the leaves its and grams; afterwards on the tip and edges of the tengue, the checks, and on the polate.

Aphthre are sometimes accompanied by a considerable rise of the temperature, and the thomsometer may mark 103° or 104°; but fewer is not an invariable rule. The toughe is very sore, and the child, if an infact, suchs with great difficulty, or may even altogether refuse the tottle or the breast. He is provide and thirsty; often vomits; has a sour small from the breath, and shows all the signs of disordered stought. Other the

howels are relaxed.

If the sores are so numerous as to be almost confluent, the child's condition may cause some arcisely. He refuses all nourishment on account of the smarting excited by the accommon of the tengue in the set of semi-leving. His breath is offensive; salivation is profuse; the featurelle becomes deeply depressed, and the sub-maxillary glands are sometimes enlarged. This accord form is seldons seen except in weakly belies, and may come on at the end of an attack of distribut. In these cases the inflavour able termination of the illness may be lastened by the imposiment these created to the taking of nourishment. In weakly or excheric children the complaint is sometimes obstinate; for although the connective of each inflavidual alter may not be unusually prolonged, bresh vessels contained appear as long as the digestire derangement to which they ove their origin remains unrelieved. Again, in mre cases, the alters are slow to beal, and may give some trouble before they are cared.

Dispuses, Aphthe are not difficult to recognise. In the training stage the nature of the derangement can scarcely be mataken; and then the above have formed, their circular stage, uniform are, and the limitation of the inflammation to the manadiate neighbourhood of the sees, will prevent the disorder being mistaken for the more serious lesson—alternation to the manadiate are proved the disorder being mistaken for the more serious lesson—alterna-

tive stomatitisc.

Proposit.—The desingement is of little consequence, as a rule. Even in the quebectic child, in whom the distribution of the sores is more color fed, and their course more obstinate, then in the healthy subject, any desper which may be present is due more to the accompanying general condition than to the local complaint. In a healthy subject, the demographs, under

julinous treatment, will readily subside.

Tendence.—In ordinary cases of uplithe all that is required is a desc of rhoborb and soda, with a grain of gray powder to clear away unleadily secretion from the lowels, and attention to the abundance of the north. After each need the anoth should be washed out with a piece of lines region a large soft brush, scaled in tepis water. Afterwards, glyorite and bornt (half a drachm to the owner) may be applied with a soft case of him peach. If an older is slow to lead, it may be touched guntly with a solution of nitrate of silver (ten grains to the owner of water).

In the more obstitute cases, attention must be paid to the general condition of the patient, and any chronic decongement of the almost system must be remedied. In a cachestic child, the use of an absolute stimulate in sufficient does will often cause a speedy improvement in the state of

the mouth.

ULCERATIVE STOMATIVE.

While following stomatistic is more common during the first eighten mentles or two years of life, the ulcerative form of stomatitis is most frequently seen after the age of two years, when the first decimin his been completed. The discuss is a common one in loopind out-patient news, and appears to be predisposed to by insuritary surroundings, a poor fittary, a weakly constitution, or a unchestic state. On this account it may be seen in children who are overfled during convalencement from an acute illness, and is an occasional consequence of a gustro-intestinal disorder. If is ead, also, sometimes to be epidemic. Its immediate some is often inclembiness of the mouth, allowing of the accumulation of tarter on the teeth, and sometimes it is set up by the irritation of a decayed booth. In nekely children, and these whose teeth decay aspidly and whose general partition is unsatisfactory, alteration of the games is not an uncommon series of disconfort. The influence of feetbeness of health, and an insufficient dietary, in producing the desangement, is so marked as to seem to justify Dr. Cheselle's suggestion that many cases of alterative storation occurring in ill-neuroshed children may be due to undeveloped scarry.

In addition to the causes which have been mentioned, alcomive stormtitis may be one of the consequences of a special constitutional disease. Thus, it is constitutes present in cases of lymphodenous, being then due to the development of the lymphoid growth in the sub-mucous tissue.

Symptoms.-The relocation begins in the gums, and is often confined to them. The game at the affected part become red, swollen, and spongy-isoking, other generally or in patches. Their edges, especially where they rise up between the feeth, are soft, red, and unuvially prominent, and they bleed very easily. The colour then grows deeper and more purple, and often at the honlers of the gum the tooth is of a greenish-yellow colour. There is some pain in questication; sulleration is copious, and an effensive olber is noticed from the month. Soon a soft, pultaceous, gracish-yellow matter forms upon the inflamed mucous membrane. This appears to arise from gangrenous softening of its most especifical layer, and adheres very closely to the tissue beneath it. If detached an ulcerated surface is shocowrol, irregular in shape, grayish in colour, and bounded by a wall-defined. length and line. If treatment is not promptly resorted to, the discuse usually apreads from the genus to the tongue, the cheeks, and the lips. On the twigge the lesion is usually limited to the part of the organ in contact with the affected gam; and, indeed, in the unjointy of cases, the alternation is comined to one side of the month, and both checks are carely affected at the same time. The slape of the alcerated surface varies according to its wat. On the lips it is more or less circulus; on the grams it is clougated. and on the interior of the cheek, from conjunction of several neighbouring where, it is irregular or simpson.

As a consequence of the ulcoration of the gums, the corresponding teeth
after become losse, and sometimes fall out. Chewing is very painful, and
the child is unwilling, by movement of his jaws, to increase his discomfort.

Even the motions necessary for swallowing the copious saliva seem to be
painful, for a young child allows it to flots away from his half-open month.

Like the breath, the salivary secretion is horribly offensive, and is often
strenked or more or less discoloured with blood. If there is disorder of
the storach, the effort of retching may cause a more copious homogrape
from the inflamed and ulcorated surfaces, and the blood, mixing with the
venited matters during their passage through the month, may appoint to

come with them from the stomach.

When the check becomes affected there is some avoiling, but this is moderate, and no induration can be detected. The sub-maxillary glands are swellen and constitues painful. The general health of the child suffers much less than might be expected. During the first few days the buspersture may rise to 1627, or even higher; but the pyrexia quickly subsides, and the notrition of the patient appears to undergo little change unless diarrhora occur. The duration of the complaint is very variable. If proper measures are taken, the alcoration is soon at an end; but if left unifrented, the lesion may persist for mostles, and is said sometimes to pass into concreme oris.

Dispersion.—The poweral redness of the unicous membrane; the pakeceets nature altherent to its surface; the peculiar factor of the bourththese symptoms, together with the large size, the irregular shape, and the want of uniformity of the ulcors, will serve to distinguish this complaint from the preceding. From cancrum oris it is distinguished by its slower course, its want of industries, and the absence of black slough. The exdation cannot be confounded with the leathery, false membrane peculiar to the dipletheritic influmnation; moreover, the latter disease is not usually accompanied by ulcoration of the macous membrane.

Proposes, —Ulcerative stomatitis is rather inconvenient than dangeness. However severs the affection may appear when first sees, it is tenenable enough when judicious measures are adopted; and the worst results that was follow are less of teeth, with perhaps a superficial ascress of an alrea-

lar percent.

Treatment—In every case of alternative eternatities our first care should be to pectify any deficiencies in the smithry surroundings of the princit, or to remove him at once to a more healthy bocality. Presh air should be especially insisted upon, and the child should pass a large part of his time out of doors. His diet should be rearranged, giving ment, eggs, and milk in suitable quantities, especially avoiding sweets and an undesirable excess of furinaceous food. Alcohol is of great value. The child may take port wase, diluted with an equal quantity of water, with his dinner, or two or three tenspoonfuls of the brandy and egg mixture several times in the day.

In addition to the above measures, no time should be lost in prescribing chlorate of potadi. This remedy has an almost specific action upon this form of elecention. The solution, however, must not be too weak. Three grains, dissolved in a teaspoonful of water, may be given every four loons to a child of two years old. For an older child, the dose may be increased to free or act grains. In some cases, larger quantities are found to be seecounty, and may be given to quite young children without apprehension. A case which has resided the remedy when given in free-grain doses, may yield to it promptly when the dow is mised to fifteen. Of local applications, the best is tepid water. Cleanliness is of great importance, and after each most the child, if old enough, should be directed to wooh his month with warm water, so as to resvent food from collecting about the inflamed surface. In the case of younger children, the mouth should be seralded out with a piece of soft lines ray dipped in warm water, as directed for uplathe. Other applications which may be used are powdered aliun, or a powder of chloride of lime. These should be applied dry to the alcorated surface with the finger, and are especially useful when the alcora are indotent and slow to bent. Underwood speaks highly of the decection of cinchons, made sharp with dilute sulphuric acid, as an application to the sores. Local treatment, however, with the exception of careful cleaning of the mouth, is seldem required. Few cases will be found to resist the chlorate of potash treatment, especially if this be combined with plenty of fresh air, and the employment of an invigorating diet with a sufficient quantity of alcoholic stimulant. No local treatment can be expected to success if these measures are neglected.

CHAPTER III.

GANGRENOUS STOMATITIS.

Gascamore stomatilis (concrum oris, or noma) is fortunately much less sommon than the other inflammatory affections of the month and checks. The disease is a very serious one, and in the large majority of coses proves faul to the child. Even when recovery happily occurs, the destruction of tions, if at all extensive, leads to very unsignify contraction of the side of the face.

Coverion.—Coverum cris is soldom seen, except in hospital practice, or second the poor. It appears to be one of the consequences of a weakly labit of body, and is most probably predisposed to by insunitary conditions and insufficient food. The cases which have cone under my notice law been in children at the East end of London, bring in miserable, squald declings, and very poorly dethed and fed. Sometimes the gangine mises as a sequel of a specific fewer or serious inflammatory disease. Thus, it has been known to follow mendes, typicol fever, scarlatina, and small pox. It may appear in scrofulous and tobercular subjects, or in children who have been exhausted by a prolonged attack of bronche pastments, or catarrial derangement of the howels. It is doubtful whether the info-ficious and prolonged use of mercury can set up the disease. That it can do so, although stated positively, has been dealed with much reason. In any case, it is important not to michake the early symptoms of the disease for those of mercurial poisoning.

Electric stomatitis is said, in pure cases, to end in casesum eris. The two discases appear to be induced by very similar conditions. A little girl, aged five years, died in the East London Children's Hospital from extenare gaugene of the right side of the face. A few days afterward, her brother, aged seven years, was admitted with severe ulcerative stomatitis, inside the left classic. The purents of these clafidren were very poor, and the patients themselves had been half-starred and very insufficiently class. Seither had lately suffered from any acute disease. Canceron oris is ravely seen after the sexth year, and girls are said to be more subject to it than

bea.

Morbid derivery.—On post-morten examination of cases of gaugeresus struntitis, the affected part of the check or hip is found to be swellen, tense, and hard to the touch. It presents, at its most prominent part, a dry, black, well-defined alongh. This varies in size and shape, according to the extent to which the mortification of the tissues has spread. It may dip more or less deeply into the substance of the check, and always involves both surfaces. The tissues in the neighbourhood of the slough are linckened, infiltrated, and hardened. Often the dry, black eacher occupies the surface of the check; beneath it, the tissues are smaller and indurated, and in the interior of the month, at the affected part, the mucous meaning is seen to be occupied by a greyish alwested surface, or a most,

loose slough, which can be readily scraped away with the handle of the scaled.

The group at the seat of disease are often slought and self; the tests are loosened, and the alisolar processes binckened and necrosed. Some-

times the lymphatic glands in the neighbourhood are enlarged.

According to Relliet and Barther, the smaller blood-ressels of the discased check are obliterated by congular where they pass through the nontified tissues. In parts merely infiltrated and swollen they are still permeable, although their walls are thickened. Batta Segule states that he has discovered naicroscocci and bacilli in the detritus obtained from the gaugrenous lesion, but it is not clear that the nous was dependent upon the presence of these organisms.

Other organs may be the sent of discuss. Brenche-presuments is very common, and promie abscesses have been found in the burgs. Sensetimes gaugeene of other parts has been seen, especially of the large and the

tuba or serotam.

Symptoms.—In some cases pain in one side of the face is the first symptom complianed of. The shift looks pale and ill; the face begins as swell, and at the same time, or seen after, examination of the chest detects a firm spot, around which the tissues are soft and orderasters. At this stage, impection of the interior of the mouth will discover a small greyish above of the muccous membrane, corresponding to the hardened spot felt in the solutance of the check. The breath has a gangement odour, and a dark bloody salive escapes from the mouth. There is little or no fever; the pulse is small and frequent, and the child is unwilling to take solid food, probably from the pain excited by mentionies. Soon the affected check becomes terms and aliming, the swelling increases, and a small rad spot forms on the surface. At the same time a brown slough developes on the unions membrane.

The ulcer is not always seated on the cheek. It may occupy the garn or he placed at the junction of the gum with the cheek. Wherever it first appears, it seen spreads, and may involve the gum, the cheek, the lip, and perhaps the whole side of the month. When the internal slough separates, which it may do on the third or fourth day, it leaves a ragged alear. At the same time, in swere cases, the red spot noted on the outer surface of the cheek becomes deeper in colour, and rapidly charges into a dry, black alongly. Sometimes the internal and external slongly are separated by itsfillrated and ordenatous tissue; but often the two sloughs come into esttact, so as to involve the whole depth of the check. In this case, when the slough separates, a magned opening is left, of variable size. In the itterior of the month the gams are more or less extensively destroyed; the corresponding both get loose, and often fall out, and the musillary boxmay become necrosof. The separation of the slough is often mattended by harmorrhage, but sometimes expious blooding takes place. The few on the affected side, where it has not been invaled by the gaugiteous preress, is avoiden and referentous, and the infiltrated eyelids can no larger he opened.

At this stage the general condition of the child earlies. If he have not been exhausted by previous neuto illness, although weak, he is not protrated, and may be able to sit up in bed without assistance. In west cases, however, he is excessively feeble and helpless; there may be great drowsizess. the pulse is scarcedy perceptible; disorders may cone to and general redema may occur. Sometimes the appetite pendsta, and the child takes liquid food with aridity; but, usually, towards the end he refuses tool, and even drink. If brencho-pnoumonia supervene, as often happens, the temperature, which had been normal, or even below the natural level.

rises, and the respiration becomes hurned and laborious.

In fatal cases the duration of the illness sures according to the rephility with which the gaugeresus process spreads, and to the condition of the child at the time when the discuss begins. In very rapid cases the child may die in five or six days. Usually, death takes place between the tenth and feartwenth day. If the child be in an enfectbed or eachestic state at the time when the first symptoms are noticed, the gangrene usually spreads rapidly, and the end may be reached before the slough has had time to expande. If bronche-passimonia arise, or a profuse discribes be set up, or soptimization be induced, or gangrene appear in another part of the body, the glaces may end in death rather abroughly.

If recovery take place, it is usually in cases where the gaugeone repidly limits itself, and does not spread through the entire substance of the check. The shough is then thrown off, and a reparative process is set up, which rads in more or less purkering of the affected side of the face. The full of the slough is, however, not always followed by repair. In some cases the gaugeone continues at the borders of the wound, and the norbid process

your on unchecked.

Dispersion.—Carerum oris in its mildest form is distinguished from a ball case of alternative stomatitis by its rapid progress, the inducation of the check at the base of the ulcer, and the inditration of the tissues around, Milgrant pustule presents symptoms somewhat similar to those of carerum oris, but differs from it by always beginning on the external surface and extending inwards to the among membrane. In gangraness stomatitis, the necessary membrane is the first part to be affected.

Proposes.—The disease is lated in the large uniperity of cases. If it leads to perforation of the cheek, especially if the gaugeone be widely spread, death is almost certain. I have known one case recover after perforation of the cheek; but in this instance, the gaugeoness process, although it perctrated deeply into the cheek, had no great lateral extension. When reevery took place, a deep purkered ciratrix was left in the cheek at the site

of the dinesse.

If a complication arise, such as brouch-operaments or distribut, the child's small chance of recovery is still further reduced. As long as he contages to take nourishment well, and to digest it, we may retain some hope of recovery. If he begin to refuse his food, or even to receive it with in-

difference, the sam is a bad one.

Treatment.—As in all discuss which result from debility and malnotriton, measures should be at once adopted to improve the general health, and
provide the clubt with suitable nounshment according to less age and digrative capabilities. Pounded most, strong beofites, eggs, and milk, should be
given in small quantities at frequent internals, taking care that the stomach
is not overloaded, and that the powers of digrestion are not overtained.
Stimulants are of great calms. Port wine, or the broady and-egg minimum,
thould be given several times a day with food. In this discuss, a child bears
stimulants well. Half an ounce of port wine, or two temposorfals of the egg
fig can be given every two, three, or four hours, to a child of the or six
years of age. The bowels must be attended to, and if much milk is being
taken, a temporaful of compound liquories powder should be minimistered
away other night. Fresh air is also of great importance, and the mealow
of the room should be kept open night and day. On account of the faster
of the breath, which causes a most offenery order in the reighbourhood

of the patient; the room must be frequently sprayed with a solution of ear.

bolic arid (one part in thirty of water).

For local treatment, our first cure should be to destroy the discuss! surface in the interior of the mouth with a powerful questic. Strong mitric acid is morally employed for this purpose. The acid should be applied eace and effectually. The operation must be performed with cure, so as act to touch the teeth, or any part which is not the actual seat of disease; and immediately after the application the mouth should be well syringed with a solution of embonate of soda or chloride of lime. Besides nitrie and atrong hydrochloric acid, the acid nitrate of mercury, nitrate of solver, and the strong solution of perchloride of iron have been used, and all large their advocates. Dr. J. Lewis Smith speaks highly of a conditination of selphate of copper (7 ii) with puly einchone (5 ss.), in four ounces of water. This application, which was originally recommended by Manusell and Evmson, is milder than the others; but applied carefully twice in the day it is said to have remarkable efficacy. If a stronger constit is employed, a secoud application should not be made within twenty-four hours of the first; indeed, the operation should only be repeated if the further spread of the gangrene is unmistakable. The faster of the breath must be corrected by frequent syringing with a disinfeeting agent. A solution of chlorinated sods (liq. sods chlorinate 5 j., aque § j.) is perlups the most useful; or one part of carbolic acid to ten parts of water, as recommended by Labarraque, may be employed for the same purpose.

The internal administration of quinine and iron scenes to be beneficial in these cases, given in full doese. A child of three or four years old will take well two grains of quinine and twenty drops of percharde of iron, with glycerine and water, every six hours. After separation of the dough, any sign of repair should be encouraged by stimulating applications. A weak solution of sulphate of zine (gp. ii), to the so.), or any ordinary laten

for granulating wounds, may be used for this purpose.

CHAPTER IV.

THRUSE.

Turner is a purasitic disorder, and is due to a fungus which attaches itself to the muceus membrane of the mouth and gullet. The complaint is of hopertures, not so much in steelf, for when it appears in a healthy child the expetition is readily dispersed, as an account of the debility and serious intestinal and other demagranents by which it is often accompanied. Strictly speaking, thread is a symptom rather than a disease, and often indicates a combition of the system which about give rise to most across

cappulation in.

Counties.-Thrush is a cryptogamic growth which finds its mides in altered secretion from the amoon membrane. It is most courses in intests during the first few weeks or months of life, and any decongement. which involves the muccus liming of the mouth may tend to its production. In such subjects, the verectation in the expression of a local state, and this local state may itself be the consequence of a enchectic condition or constitational disease. The development of the fungus is favoured by heat of weather, want of elainliness, and indigestible food. It is consequently very common during the summer months amongst hand-fiel industs, especially amongst those who are supplied with a highly fermentable dist, and are alloved to suck their food from dirty bottles. In such cases, the passage through the mouth of some fluid, and the decangement of the storage which results from formeratation and acidity, maintain a state of constant oral caturn which forms a congenial medium for the development of the parasite. In a seture form the compliant is never seen except in imperfectly nourided infants, whose food is ill-selected, and whose general management lettes much to be desired. Imperfect ventilation, and general insunitary surroundings, are no doubt agencies which further the invasion of the fungus. and assist its greath. New-born infants crowded together in Foundling Bospilals often suffer greatly from such influences, and in these institutions thrush is a common and much-dreaded visitor. Even after the first influers, the later stage of many acute and chronic forms of disease is liablein he complicated by the presence of the purasite, for in the young citable a catasrial condition of the alimentary mucous membrane often forms a accuracy part of such illnesses.

In children eachied at the breast, the parasite is rurely seen; and if, on arount of some temporary derangement, it succeeds in establishing itself upon the mucous membrane, it is readily dislodged by antiable treatment, and quickly made to disappear. Thrush does not seem to be contagious in the ordinary sense of the term. No doubt, if the mycelium be purposely breaght into contact with the mucous membrane of a child who is in a broughle condition for its reception, the plant may flourish in its new situation; but in a child whose mucous membrane is in a healthy state, the

Dyermant will be tried in vain.

Morted Autrosis. - The paracitic growth which constitutes thresh, repsists of the mycelium and spores of a cryptogranic regetation which was first described by Robin under the name of column albiguas. The frague has now been identified by Haller as identical with the column lastis which results from the soid fermentation of mills. The muccus membrane of the mouth is first seen to be red, and its secretion has a distinctly and yeartion. Then, in the course of a few hours, little white points appear upon the reddened surface, especially on the checks and the inner surface of the lips. These increase in number and in size, and by the second day are seen to have united into patches which cover a considerable extent of acrfare. Even before the appearance of the white points, a gentle scraping of the muccus annalysase reveals to the microscope mater spores of the firmgus. These are elongated cells-egg-shaped bodies-which are often riturbed to one another by their ends, so as to form groups of two, these, as four. The white points are found, on examination, to consist of these connected speeps, combined with scaly spithalism: from the muccus mendrate

detached spores and molecular deposit.

The white, newly-formed membrane costs the interior of the mouth and gullet; but is usually confined to parts revered with scaly quithelium, for it avoids the rasal passages, and selfou penetrates into the largur. Parrot, however, states that he has seen evidence of its pressure on the road cords. The advance of the membrane down the alimentary canal was for a long time supposed to be arrested at the earline end of the storach; but Parrot asserts that the fungus is occasionally to be discovered in the store ach and bowels. In these situations it presents a peculiar appearance. In the stomach it is seen as small granules, separate or grouped, and varying in size from a millet-seed to a particle investble to the naked see. The smaller are pointed; the larger are slightly depressed in the middle. In colour, they differ little from the mucous memberase on which they are placed, but some have a faint yellow that. They adhere firmly to the surface, and cannot be scraped off or washed away. The thrush granules affect principally the posterior surface, especially the neighbourhood of the pesterior curculure, and he nearer to the capita than to the pricers. Surrounding them, the mucous membrane retains its colour, or is of a tose or violet tint. Parrot reasoned sections of the gastric mucous members. and found the more superficial portions of the glands to be destroyed by the parasitic vegetation, which had penetrated into their interior, and had also advanced, although to a less extent, into the intervening tissue. Acconling to Wagner, the spores and filaments can be sesectimes detected within the blood-vessels of the part.

In the intestines, Parent states that he has succeeded in discovering the fungus only in rare cases. In each instance its seat was the excum. Whether the growth has the power of attaching itself to the arm, is not clear, for an examination of the whitish pullaceous matter sometimes found at the critics of the rectum, revealed userely presented a certain smalog; with the flaments of thrush. On the runcous membrane of the mouth, the flaments of thrush. On the runcous membrane of the mouth, the flaments of thrush is at first white, and finally solberent. After a few days its colour becomes browner, and its connection with the marons surface less intimists, so that it can be readily wiped away with a brush or poor of

not reg.

In all cases of death from the serious intestinal demograment or the constitutional cuchexia of which thrush is a chief local expression, estimate strophy of the tissues is a striking phenomenon. The infants are usually in a state of professed malnotrities, and present, according to Parvet, fatty degeneration of the kidneys, the lungs, and the brain, semetimes alteration of the stormels, and, not unfrequently, howeverlages within the

cranial cavity.

Symptosis.—In cases where the puresitic growth attaches itself to the assense membrane of a sturdy infant, the appearance of the white points is preceded by redness and screeness of the mouth, and a rise of temperature. The child is noticed to suck with difficulty, and, if hand-bot, may refuse the bottle. He solden however, declines the breast for this reason. Often le makes movements with his lips, cries if a finger is introduced into his month, and is evidently measy. His temperature often rises at aight to 103° or 104°. At the same time there may be a little looseness of the borela, preceded by colicity pains. The motions are aline or green, but not very offensive. Often they are senid, and cause some redness and exceptation of the nates. This is looked upon by nurses us a satisfactory symptom, being considered to indicate that the thrush " has gone through " the child. In many cases there is decomponent of the storage, and remiting.

The above constitutes the whole of the symptoms. Although the temperature is raised, the stools have an innocent appearance, and the face expresses no discress. In the mouth, the thrush is limited to a few whole patches, looking libs particles of card adhering to the nancous membrane. They are seen on the inner side of the checks and lips, on the torque, sometimes on the hard palate, but seldem, in these cases, at the back of the throat. They may be removed with a little trouble, and leave the moreons surface on which they had been seated manifolding and bright red. When this removed, similar little patches quickly appear in their place, but after

a few days the surface cleans, and the child is well.

Tais simple variety is the shape the composint assumes in ordinary cases, and practitioners whose experience is collected entirely from families in ency circumstances may have observed it in no other form. In hospitals and asslums where infants are admitted it is seen as a much more serious complaint. In bubies who have been neglected or fed injudicionaly, and confined to dirty, all-ventilated, forth-melling rooms-poor, misemble little objects, who have sunk from these causes and the consequent bowel demonstrate ment into a state of extreme atrophy and weakness, the whole of the interior. of the mouth and fouces is often completely lined by the white thrush membruse. The layer adheres closely to the mincons membrane, and can only be detached with great difficulty. If this be done, the mucous surface beneath in seen to be raw, and nametimes alcemted. According to Valleix, stallow nicers on the hard pulsie may precede the appearance of the parawie regulation. An infant so affected cannot suck, and, indeed, often can hardly swallow. His mouth is dry; his lips are red and dry looking, and if the surfaces where they come into contact, white scattered particles of thrush can be perceived, even when the lips are almost closed. The child's eyes and cheeks are sunken; his face is puls and haggard, and marked with a well-defined must line which becomes a deep furrow on any movement of live lips. The buttocks and gonitals are often covered with an erytherastons to represent our reduces, and alcorations may be reduced on the internal mallook, and sometimes also on other bony projections. His skin is loose and it threselvely inelastic, often lying in fax tolds upon the belly. The child Whatpers foobly, but never error. His mouth has a sour, or even a collavorare until. The motions, more or less profess, are equally effective. He gets weater and weater, and gradually states out of life. Sometimes the condition known as "sperious hydrocophalus" is noticed before death. The temperature varies. Sometimes, on the first appearance of the parasite, the external temperature is found to be 101°, or higher, although the extransition feel cold; but after a time the temperature fulls below the level of health, and may be only 96° or 97° in the rectum. In many of these cases, the secretion of name is diminished. According to Parcet, it often contains allumen; and this pathologist is disposal to attribute the cerebral phenomena which are upt to occur in these cases to toxic causes, from retention in the blood of arising elements.

In these severe cases the general symptoms depend upon the internal entural, or other primary lesion, whatever it may be, which has reduced the infant's strength, and prepared the way for the invasion of the pursits. Often the illness ends in a produce distribute, but the boxeds are not invariably relaxed. In some cases, an attack of catarrial pastimonia, or pulmonary catarris, with collapse of the bing, may bring the life of the infant pre-

neaturely to a close.

Dispasses.—Thrush is not difficult to detect. We have merely to examine the mouth of the infant, and observe the white adherent patrice sprinkled over the surface of the muccus numbrane. If a particle of our of these patches be detached and placed under the microscope, the characteristic patrices are detached and placed under the microscope, the characteristic patrices are detached and placed under the microscope, the characteristic patrices are detached.

teristic spores and filaments will at once be noticed.

It is possible that, in the rare cases where diplatherate false membrane is seen on the interior of the lips and month, it may be mistaken for thrush, but diplatherate membrane is thicker, tougher, and more leathery in tenture, less whate in colour, and under the microscope shows no spores. Moreover, the superficial cereical glands are enlarged and tender in diplatheris. In cases of thrush they are not affected.

Particles of rund clinging to the guns and sheeks of a child who has just taken his bottle laws exactly the appearance of discernizated particles of thresh; but they can be readily super off with a small brash or feather, and on their disappearance leave no reduces of the nuccess membrane.

Progress.—In cases of thrush, the probabilities of the child's recovery depend partly upon his general condition, partly upon the extent of surface recoval by the regretation. If thrush appear in the mouth of a stardy, well-nearthed child, as a consequence of series temporary derangement, the symptom is one of little consequence, and the puresite can be reality dispersed. In a stald, exfectled and wasted by showed digestive derangement, or the victim of inherited symbilis, the appearance of thrush in the mouth is a symptom of the stated gravity. In such a case, the child's only chance of recovery depends upon the rapid introduction of normal-ment into his system, but a decauged condition of the mucous manhane may neutralize all our efforts to improve the state of his nutrition. In an infinit so reduced, the rapidity with which the fungus is seen to spend over the surface, may be taken as a measure of the screenity of the digestive derangement. If it rapidly cover the whole interior of the mouth and throat, the child's clausers of recovery in his weakly state are small indeed.

Treatment.—In mild cases of thrush, our first care should be to renedy the temporary gostric derangement which has allowed the parasitic growth to effect a belignout on the mucous membrane. The diet must be medified as recommended in the chapter on infantile strughty; and if the bowds are relaxed, the losseness must be arrested by sanishic treatment use page 626). If not related, they should be acted on by a dose of richard, with a grain of gray powder. Afterwards, a drought containing a few grains of carbonate of each, with an aromatic, should be given three to four times a day. If there is manues, the stormets should be cleared out by an emetic of sulplate of copper (half a grain in a temporatid of water), or a temporatid of specializable wine, given every ten minutes until vomiting is produced.

Fresh air is of extreme importance. If the weather is smitable, the child should pass much of the day out of doors; and especial care should be taken that his sleeping-chamber is sufficiently ventilated, and that soiled lines is not allowed to remain in the room to vitints the air.

With regard to local treatment :—Perfect clearliness is indispensable.

Executy the infant has taken the bottle, his mouth should be evaluated out with a paces of soft linen ray, or a large camells-hair brush, moistened with same water. Afterwards, the whole of the interior of the mouth should be brushed over with a solution of borax (half a deathm to the course) in water secretared with giverine. If this treatment be repeated after each man, it will not be long before all signs of the fungus have disappeared.

In the more severe examples of the complaint the same local treatment most be employed. If the fungue be exspected to have passed into the guilet, the child may be forced to availow a few drops of the wash diluted with water. If superficial ideoration are seen, ten grains of subplate of rine may be added to each some of the male, for use as an application to the manous membrane. The chief difficulty in these cases is to improve the child's nutrition and increase his strongth. If the porents are in a position to supply a wet nurse, this method of feeding should be adopted at once. If the child is forced to trust to the bottle, now milk or the milk of the goat is preferable to that of the row. Either should be given pracreatised according to the method recommended elevation (see page (06) White wine when is a valuable resource in these cases, and if the infact be much reduced in fish and strength, with small digestive power. he may sobant upon it entirely for the first few days. A decent-specuful of fresh gream shaken up with each betileful of the wlay makes it more autritions, and is a very digestible addition to the meal. In all cases, the internal treatment will depend upon the accompanying conditions, and especially upon the asture of the filmess in the course of which the local complaint has appeared. Often the child is the subject of a chronic intestinal calum). This must be treated as directed elsewhere (see page 640). If the purging is moderate, and there is no reason to suspect the presence of skeration of the bowels, much benefit may be often derived from a postder containing one grain of ranharb, with one grain of powdered back and three grains of aromatic chalk, given two or three times in the day,

Fresh air, with warmth to the belly, and the most perfect demliness, not only of the shalf's body and linen, but also of all spoons, cups, feeding-

bottles, etc., used in his nursery, are essential to his recovery.

CHAPTER V.

PHARTNGITIS.

Pauriserra, or sore throat, is common at all ages, and is a frequent somplaint in early life. The disorder may be nest with as a simple cutarri of amounts membrane; as an inflammation affecting especially the national follicles; as an eruption of larges in the pharyna, or as part of a server constitutional disease. Four varieties will then be considered, on, simple cutarrial pharyngitis; follicular pharyngitis; herpetic pharyngitis, and to berealar pharyngitis.

SIMPLE CATABRHAL PHARYNGITES.

Commiss. Cutarrh of the plantyns, like entarth attacking other parts of the body, is usually the consequence of a chill. Any cause which its clines the body to be affected by changes of temperature will help to make the disorder. It is, therefore, common in sevolutous subjects, in children endsebled by confinement to heatest, ill-ventilated rooms, and in those resident in houses where the air is contaminated by an imperfect system of drainings. Direct instants to the throat will also set up pharyagitis, which at once passes beyond the limits of an ordinary plaryngeal entarth. The chibiren of the poor me often brought to the hospital with severe scale of the threat from attempting to drink beiling water out of the most of a kettle. In the above cases the discorder is a primary leaden. It may, however, occur accordarily to some general disease. Thus, catarah of the planyus is an invariable consequence of measier and scarlating. It is also common in typhoid fever, in theirmstiem, and in ercopelas. In all cases, the demagnment is an acute process, although if frequently repeated it touch to set up a printed and congested state of mucous membrane.

Symptoms.—In multi cases, the first symptom is usually a sore feeling in
the threat, which is narrowed by swallesting. On examination of the
threat the back of the fauces, the soft pulste, and the tonsils are noticed to
be real, and the latter may be slightly swallon. The torque is farred, and
the child is thirsty. In scredulous subjects the temperature almost invariably rises, and there is a certain amount of pullor and languar. In the
slighter forms little more in to be discovered. After a day or two the child
begins to scraffe, and the threat affection disappears as a need calarit be-

contra established.

In the severe variety the earlier symptoms are more pronounced. The child feels ill and looks tired. His face is pale, his cyclids are dark be complains of weariness and aching in the limbs, and asks to go to bed. Often be sits over the fire and says he is cold. In a few hours someward the throat begins. The fauces are found to be sed and the tonels to be slightly swellen. Whitish pultaceous matter may be seen at the openings of the crypts of the tonels, and sometimes at the linck of the plantys. emolalous subjects the temperature generally rises to 104° or 105°, and in such skildren the glands of the neck, although little enlarged, are tender when the neck is pressed. The tongue is thickly furred, and in most cases the areal passages and the gastric mucous membrane are also the seat of ratarris. Moreover, the eyes look red and watery, and the child seconds the light. In a day or two the estarth often spreads to the Eustachian tubes, so that there is some deafness. The roice is used, and strallowing causes great pain, so that the child refuses all solid food. The bowels are usually confined | but if there is any intestinal cutarris, the disorder may be accompusied by purging.

After twenty-four, or, at the latest, forty-eight hours, the fever-considerable diminishes, but the temperature may remain at 100° or 101° for a day ce two longer. Usually, after the third or fourth day the symptoms begin to inbuls, and by the end of the week the child is convalencent. If the gatient has suffered many times previously, the denfuses may not subside with the other arreptoms, but may persist for a week or so longer.

A scald in the throat is accompanied by great nervous prostration-There is severe pain in semllowing, and consequently an almost entire mabills to take food. The mucous teembeure of the month, palate, and pharynx, looks whitish; raw pulcies are seen, from which the muccous meantrue has been removed, and there is much seeding. Often the larger is also injured, so that acute largagitis is set up, and ordena of the glottis. may be induced.

Daysous. - An ordinary pharyngitis can usually be readily recognised. The chief difficulty is to exclude discuses of which pluryngitis is a promi-

test symptom, especially acarlatina and messies.

In exiclation, the pharger usually presents a pseuliar appearance. The telness is of a very bright colour, and is diffused over the whole of the traves. Often it is punctiform on the soft palate, or, even if the redness here is uniform, the punctate appearance can be detected at the edges of the reduced. Moreover, in sourlation, the feeling of soreness begins quite extilenty, as a rate, and the attack is accompanied by counting and a very mped pulse. In twenty-four hours the characteristic cruption is to be disen croil.

If the signs of cuturth are general, and the sore threat is accompanied. by eight ophthalmin and running from the nose, mendes may be suspected. laded the invasion of the coupling fever is accompanied by symptoms Which cannot be distinguished from those of an ordinary estarch. If, on the third day, the fever is as high, or higher, than on the first, the continusace of the pyrecia tells in favour of the exanthem; but no positive opinand should be breamfed until after the fourth day, when, if the case be one

of messles, the characteristic rush may be expected to appear.

Brutwest.-It is not often that medical advice is sought in a case of colimer exture, the desargement being one which is considered enjoycally untable for domestic medication. If, however, the fever is light the nadical practitioner may be called in. A feverach child should be conand to his bed. He should take a grain of calonol, followed by a saline spericut, and his dist should consist of milk, broth, and dry tosst. A cold compress, or a layer of cotion wool, may be applied to the throat. If the the be acquarry, it is useful to prescribe the hypophosphite of lime, which as a really remarkable influence in cutting short an ordinary cutarris For a child five yours of age, three grains of the salt may be green with five drops of spirits of chloroform and ten of tincture of cardamons, in two empoonfuls of water, three times a day. A mild extarm is often arrested at

ence by this means, and even in severe cases the course of the derargement is sensibly shortened by the remedy. The pyrexis usually subsides quickly after the action of the aperient. If it persest, a drop or two of tineture of acoustic may be given in a temperature of water every two or three hours.

If the throat remain relaxed after the subsidence of the pyronia, a mild astringent gargle, if the child-can use it, or a rhatmy or tannin largresticked two or three times a day, will produce a brasing effect. In case where there remains a great sensitiveness to chills, the susceptibility may be considerably diminished by the daily use of a cold douchs, administract

in the manner elsewhere recommended (see page 17).

Severe scalds of the threat usually occur in the younger children. If the pain be severe, it may be allayed to some extent by suching its, or by administering, occasionally, a teaspoonful of crushed ice on which a little angar has been oprinkled. Small doses of opens are often accessary; and this remedy applied locally, as by spraying the threat with glycense and water, made anodyne with a few drops of landamen, is very beneficial. If the child cannot smallow, he may be fed through a stomach-tube passed through the now, as directed in a previous chapter (see page 10). Beetal alimentation is very unsatisfactory in young subjects.

If laryngitis occur, it must be treated as described elsewhere (see

page 410 L

POLLICULAR PRARYNOITIS.

Chronic inflammation of the follicles of the pharynt is an obstinate complaint which is often even in children. The discorder is an important one, as it may induce deafness, and frequently gives rise to a persistent rough

which is a cause of much anxiety to the patient's relatives.

Crusation.—Follientar pharyagitis is especially likely to attack struments subjects, and those who belong to families in which there is a goaty or rheurostic tendency. The disorder is not often seen in very young itsideen, although Dr. Morell Mackenzie has met with it as early as the third year. It is most commonly found in children of eleven or twelve years of age and upwards. It sometimes appears to follow certain specific fewer, such as measles, scarlatina, and small-peor. In other cases it is apparently excited by exposure to cold acting upon a weakly frame. The subjects of the disorder are often ill-nourished and feeble-looking and this fact compled with the cough which is so common a consequence of the disease, may give rise to fears of consumption.

Market Justicey — The follieles are enlarged and their walls thickered. They are filled with a cheesy secretion consisting of deponenced epithelial cells, molecules, and oil-globules; and sometimes contain concretion of

carbonate of lime:

Sany case.—The case is seidom seen until the derangement is advanced. It is then, nounly, as has been said, the cough which excites the along of the parents. The cough is frequent and hard, and the child often clears his raice, and when questioned complains that he has a "ticking" in his throat. The symptoms vary in severity from time to time. When the discuss is severe, the cough is accompanied by pain shooting up into the head or care. It often comes on in paroxysus, and these are up to occur in the night. There is also an uneasy sensation in smallowing, stell the child may complain that "coughing makes he throat sore." In advanced case the discuss extends to the laryex, preducing hourseness, and into the Esstarbase tubes, causing dulness of bearing. If the posterior series are shoulded, the sense of smell may be impaired, if the soft pulsts, the same

of taste may be affected. Loss of those senses is not common in the child, or is difficult to ascertain; but a certain impairment of hearing is frequently complained of. Imdeed, I am informed by Mr. Reeves that of the children who are brought on account of deafness to the Ear Department of the London Hospital, a full third owe their infirmity to this affection of the throat. In such cases, a pseudiar flattening of the mostrils is often produced, owing to the swelling of the posterior narse. The appearance is similar to that which has been so often remarked upon as resulting from a chiente culargement of the tonsils, and is indeed produced, like it, by the discuss of the most passages in respiration. Discuss of the middle car, with discharge from the mentus, may be also a consequence of the pharyugual affection. A cutarrh is very apt to spread about the Eastachim tube into the tymparam; and the secretion being unable to escape through the coclinical tubes, accumulates, and leads to alcoration of the tympanic mean-beaut, and otorrhoes.

In mild cases of following pharyngitis there is little interference with degletition; but when the discuss is more pronounced, swallowing may be difficult as well as poinful, and the attempt to availow is said sometimes

to give rise to spasm of the pharynx.

On inspection of the famous, we find small eminences scattered over the micross membrane at the back of the pharynt. These are rounded or clongated in shape, and may be so montrous as to present a granular appearance. Their colour, and that of the whole micross membrane, is deeper than natural, and enlarged superficial veins may be seen running in the depressions between the prominent follicles. If the disease is extensive, similar granules are found on the pillars of the fauces and on the tensils. Sanctimes micros, more or less stringy and turbid, may be seen clinging to the tensils, or hanging down from behind the soft pulate, and this may be mixed up with reflow-looking exadation from the diseased follicles.

In screenists children, observation is very apt to occur. The observate asstel in the follicles. If isolated, they are small and circular, but when placed closely together, they are larger and irregular from junction of the boolers of neighbouring scree. The grain is clonguted, and its surface is

latted over with enlarged glands.

Programs.—The diagnosis of following pluryagitis presents no difficulty. If the patient is brought on account of cough, examination of the thest usually reveals no sign of disease, while inspection of the throat diserces the characteristic granular appearance of the pharyux.

Propagate — In children, the discuss can usually be arrested by suitable tentment, but it may tend to recur afterwards from slight exposure. Folloular pharyngitis may be associated with phthisis, and, according to

Dr. Horsce Green, is sometimes a cause of it.

Destroyst —As children suffering from this complaint are usually weakly and under-nourished, the general health must be first attended to, and the child will often be greatly benefited by cod-liver oil and tonics, such as iron and quinine. A little sound claret diluted with water may be given him with his diamer. In fact, the constitutional treatment recontended in cases of strongly marked strumous distalses is often required.

For a cure of the local disorder, local treatment is essential. In mild case, a more healthy action of the pharyngeal muscus membrane may be induced by estringent applications, especially by breaking the throat two of three times study with the glycerine of tannin, or with equal parts of strang paralleride of iron and glycerine. Dr. J. Sawyer speaks highly of the local application of boxas. A saturated solution should be sprayed into

the throat for several minutes, three or four times in the day, at an internal after food. The extract of encalpytus, in the form of a lorenge, is also

nerviceable when secretion is copious.

In more severe cases, it may be necessary to destroy each folicle uparately by a constite or the galantic contery. The latter, which can be put
cold into the throat and rapidly heated in site, is no doubt the most convotient. Moreover, its action being instantaneous, the application is bee
poinful than that of the more slowly-acting escharotic. If a countic be used,
attract of siter, properly employed, is one of the most successful. The
throat must be first channels with a tensh souled in warm water; then
with a piece of lunar countic, sharpened to a fine point, each enlarged folicle
or ofter most be touched separately. The number of follieles to be destroyed at one visit must vary according to the sensitiveness of the child,
and the distress produced by the application. On the first occasion, only
one or two may be destroyed as a trial test.

Instead of the lunar constite, other constics, such as Dr. Morell Markets

zie's "London paste," may be employed.

HERPES OF THE PHABYSX.

Herpen on the skin is a common emption in the child. Sometimes the

rish appears on the pharyin, and produces great discomfort.

Cavastion.—The causes of herpes are doubtful. The complaint is said to be excited by exposure to cold, but a constitutional tendency appears to be necessary to its devalopment. There is no doubt that, as Troussess first pointed out, plurynged herpes is especially common during outlevals of diplotheria, and that in such cases the zymotic disease may become en-

grafted upon the herpetic ereption.

Symptoms.—The complaint begins with fabrile armptoms, followed after a few hours by soreness of the threat. The child complains of a pumful feeling in deglatition, which is usually distinctly confined to our spot. On examination, a few whitish eccicles are seen clustered together on the soft palate, on one of the pillars of the funces, or on one of the tousils Around them, the moreus membrane is redder than natural will swollen. Sometimes the sesseles are more numerous, and more personal; distributed. The vesicles last from twenty-four to forty-right learn, will may then disappear without rupture, or burst, leaving little white spots from macerated epithelium, or eircular ulcers which soon heal. Some times, instead of healing rapidly, the alcera become covered with pulsacome explation, and, if the wores are numerous, the emulation may form a continuous layer. More usually, however, the patches are small and related. Their seat is generally the soft palute, or one torsell; miden the took of the pharyax. After three or four days the capitation becomes for tached and disappears. Sometimes more than one crop of weather to me tired. Often, hower of the phareny is maceisted with the same condition of the lip; and the resides are said sometimes to invade the larger and the openings of the Eustrchian tubes, so as to affect the respiration and the sease of bearing.

Programs.—When the discuss is seen in the resicular sings it is really recognised. If, however, inspection is delayed until the patches of such tion have formed, the case may be mistaken for one of slightherin; some especially, as this form of the complaint is often associated with outbreaks of that discuss. If, however, herpes of the hp is present, and especially if small circular allers can be seen mixed up with the small patches of amdation, we may suspect placeunged berpes. Still, it is often impossible to

distinguish the case from a mahl attack of dightheria.

President.-The complaint requires little treatment. Attention must be paid to the bowels. If the tougue is furred, it is well to administer a narcarial purge, such as a grain of calonici with two or three grains of playing. While the pyrexia lasts, the child should be kept in bed and put area slope-indeed, the pain induced by deglatition will prevent his wasting to availow solid food. If the fever is high, tan ture of aconite may be girm in doses of one or two drops, every hour, or two hours. If the discomfort in the throat is great, it may be relieved by tabulations of steam, medicated with compound fracture of benzoin () to the pint). If in the stage of exposition there is any fastor of the breath, inhalations or sprays containing cosmote or earbolic acid (4) as, of each to the pint) may be name use of. As an internal remody for children, Dr. Morell Mackennie speaks highly of arsenic. Three or four drops of Fowler's solution may be given there times a day, directly after food, to a child free years of age. If there is any sloubt as to the nature of the complaint, and diphtheria be epidemic in the neighbourhood, the treatment for that disease should be at unce adopted.

TUBERCULAR PRARYSCITIS.

is children, the subjects of tuberculesis, the phoryax, like any other part of the body, more become affected as a consequence of the distinctic state. The pharyngeal composint is only a part of the general disease; but it may occur in children in whom no pulmonary symptoms are present, and in subjects who have not previously suffered from delicacy of the threat.

Moving Austrony.-The mucous membrane is the seal of electation. which is limited at first to one side of the fauces. The ulcurs are due to the cascation and breaking down of gray granulations themselves, and not to the development of these granules around a sore formed by the disintegration of ordinary cheesy matter, such as may result from preliferation of the cellular contents of a glandular follicle. Frinkel states that in a previously sound portion of the velum pulati he has been able to follow the whole process with the eye. Thus the gray nodules have aprong up, have bioing gawous and disintegrated, and have been replaced by alcers under ha own namediate observation. On microscopic examination, the base of the uber is seen to be infiltrated with round calls, which perments the selemeons tissue, and even reach to the maseles. The same cells also infiltrate the cellular tissue of the glandule. The special gland cells are often in a state of fatty degeneration, and tend to become cheory.

The other organs of the body are also the sent of the gray granulation. Symptoms.—The first symptom pointing to the throat is soreness, and this scenar to be exceptionally severe, for the child makes it the subject of continual complaint. In deglutizion the pain often shoots up to the cars, and usually becomes so great on taking solids that no persuasions can inwere the claid to swallow anything but liquid food. In addition to pain. there is sometimes difficulty in deglutation, and Equals may return through

the month and nose.

On examination of the threat, the muccus membrane is seen to be ulcertical. The electrs generally begin on one side on the total or one of the polices of the buces, and spread slowly to the soft and hard polate and the lack of the pharenx. According to Frankel, they begin as gray isolated or confinent nodulos, which afterwards undergo caseous degeneration and electation. They tend to spread transversely maker than in a vertical disrection, and seldom penetrate deeply into the tissues. The floor of the ulcer is irregular and cheesy; the burders are congested and undermined. In the neighbourhood of the sores, gray military notinies can be distinctly seen dotting the nurcous membrane. If the usuals is not irrealed by the destructive process, it often becomes atrophied. In the opposite has, it swells to a considerable thickness, and may be dotted over with hard notules. Eventually it may be enten near.

The ulceration may spread extensively. In a case reported by De Gee—a clobd six years old—the whole of the plantynx down to its union with the guillet was covered with yellow purulent matter. The nuccous nembrane was extensively destroyed, so as to by bare the plantyngcal massles. The soft polate, back and front, was in the same condition. The nyufa was destroyed, as well as the nuccous membrane of the tongue, half way to the foramen excum. The right torsil was gone, and the ary-pipilottidean folds were ulcerated superficially. The true vocal cords and the largue below them were unaffected.

As a consequence of the alternation, the voice acquires a most quality, as it does in most cases of phoryagitis. The glands of the acck become enlarged along the borders of the sterno-mustoid muscles, and at the argics

of the jaw.

When the case is first seen, the general nutrition of the child is not necessarily menticlaritory. The degree to which it is impaired depends in a great measure upon the acrisel at which the pharyageal affection upon in the general disease. If it occur early, the child, although thin, is not ereaciated. His thinness is no doubt chiefly due to the influence of the encloses upon nutrition, but is probably also in part the consequence of difficulty and pain in swallowing, which is a bur to the taking of sufficient fool. The general symptoms are those of tuberculosis. There is fever, but seldom a very high temperature, the evening rise not often passing byould 102 or 103. There is usually cough, and an examination of the clast may detect signs of consolidation; but in some cases no evidence of telepele can be discovered at first in ofther the chest or the abdoner. As the disease advances, however, signs of marchief become manifest in other parts of the body. Spots of dulness may be discovered at the spices of the lengs; a secondary enturnal pneumonia becomes developed; signs of tuberenlic peritonitis are to be discerned, or symptoms of tubercular area ingitis occur; and sometimes a persistent purging is set up, with all the signs of tubercular adveration of the intestimes.

Dispussio. The chief difficulty in the diagnosis of interest of the pharens lies in separating it from syphilitic alceration of the same part The distinction is, however, easier in the child than it is in the whilt, for in young subjects the latter disease is almost invariable a congenital maasir. If, then, by careful questioning of the parents, to can find no history of mischringes on the part of the mother, or of syphilitic symptoms in the potient binned shortly after birth; if the child bear about him no evidence of past explaintic disease, such as flattened bridge of the now, small pits, and linear cicalrices about the angles of the mouth, prominence of the feehead, spacity of the cornea, or enlargement of the splasn; if, too, the permaneral incisors have appeared and show no sign of malformation in such a case we mus exclude syphilis with tolerable certainty. If, on the eller hand, a heroditary tendency to phthisis can be discovered, or if other the dreft of the family have died with symptoms of tebercular meningitis the eridence as in favour of tuberele. Still, a history of syphilis, although points ing strongly to this cause for the ulceration, does not make it certain that the pharyngeal disease is a result of the reneveal taint, for a syphilitic child mar fall a victim to beherculosis. Nor, again, if eigns of tubercle are to be discovered in other organs, can we, from this circumstance alone, positively enriude a syphilitic origin of the throat lesion, unless we are supported in this judgment by the family and personal history of the child. Fortmately, towerer, careful abservations of the fances itself furnishes sufficient evidence. In syphilis, the ulcers have sharper edges, penetrate more deeply, bull to produce contractile scars, and have no gray nodules in their neighhearhood. Tuberculous alcers, as has been already remarked, are super-Scial, as a rule, with irregular nodular, croded, and undermined edges, and a cheesy floor. In their neighbourhood, gray miliary nodules are men underpoint the spithelium. Moreover, in taberculosis, the ulcoration greats very slowly, and the cervical glands are invariably enlarged. In apphilia, the extension is more rapid, and the glap is of the neck are rarely indurated and swollen. Assin, syphilitic alcoration is not accompanied by ferer, while in tubercular pharyingitis the temperature is always elevated. The diagnosis will therefore rest upon the complete absence of all applifitie history, either family or personal; the appearance of the series thomselves, with the gray miliary modules in their neighbourhood; the enlargement of the superficial glands, and the presence of fever.

Proposiz.—The stiscase is always fatal; and, indeed, the pharmingsal being touch to hasten the end by the rapid exhaustion it induces through the difficulty of supplying a sufficient quantity of nourishment. Death

sensity occurs in from two to six months.

Profused.-Little can be done in the way of treatment in retarding the downward course of the illness. Nutritious food in small bulk, such as mest essence, pounded mest made liquid with gravy, yolks of egg, wilk, eto, should be given; and the strength of the patient may be also supported by doses of the brandy-and-egg mixture or port wins. If the child is anwilling or smalle to awallow, nourishment must be administered by the stornich-tube passed through the nose.

We must endeavour to relieve the distress of the child by soothing applications. Brushing the affected part with glycerole of morphia is recomunished by Isumbert. For a child of seven or eight years old, the strength of the application may be one grain in three simchms. Inhabitions of

steam also appear to relieve.

CHAPTER VI.

QUINSY.

Access inflammation of the torsule, or quase, is a frequent complaint of later childhood, but is comparatively rarely met with during the first few years of life. One of the peculimities of the affection is its disposition to seem. A first attack leaves behind it a tendency to a second, and the same subject will be found to suffer from the discuss again and again under the influence of apparently trivial causes. A common consequence of these expented attacks is a hypertrophical condition of the torsule. This may be a source of great inconvenience, and may even have a serious of

fect upon the health and general development of the child,

The tourils are often found to share in a general inflammation affecting the muccus membrane of the mouth and fances, and in scarlatina and diphtherin they are almost invariably inflamed and swellen. The mine "quimy" is, however, applied to a special primary affection which appears to be something more than a mere local complaint. Acute tourillitis has indeed, been compared to crospous presentin—mother discuss which is no longer regarded as a purely local inflammation. In each of these forms of illness, we find general symptoms severs but of all proportion to the local lexion; a rapid rise of temperature which often precedes the more special symptoms, and a critical fail on the fifth or south day. In each dis-

case, too, the attack appears to be due to very similar entries.

Countries.—Although occasionally not with in young children, quitsy example to said to be common until about the eighth or winth your. In the cases there is probably a special individual susceptibility rendering the patient more liable to be affected by cold and dump, which appear to be the unlineary causes of catarrh. Any influence which exercises a depressing effect upon the system will no doubt assist the action of these causes, and some observers are disposed to believe that in unfavourable subjects such depressing influences alone are capable of exciting the attack. There appears to be a distinct connection between tomalities and sente rheumalism. Quitsy is common in chemicalic subjects, and attacks of rheumalism are often preceded by acute inflammation of the tomails. Indeed, so frequently as this the case that quitsy has been looked upon as an early manifestation of the rheumalic tendency.

The inhalation of sever gas is another common cause of tensilitie. Innates of houses where the waste-water pipes run directly into the sulpipe or where the main soil-pipe is defective and leaks under the insensest floor, are often subject to repeated attacks of quinsy, and also to a slower influentation of the torsels, which resists all treatment as long as the pa-

tient remains in the vittated atmosphere.

Chronic hypertrophy of the totalls is not always the consequence of the neste form of the disease. In scrofnlous children, enlargement of these glands may arise from a process of slow inflammation. The same thing is

accusionally seen in children in whom no hereditary disthetic tendency can be discovered, and in families where the other members are strong and healthy. In these cases it will be generally found that the patient, if he has not suffered from repeated attacks of the sente form of the discuss, has been long exposed to insunitary or other depressing influences by which his development and general natration have enstanted distinct injury, The child may have fixed in a vitiated atmosphere, been overworked at school, or been subjected to other sources of depression which have reduced. his strength and diminished his vital powers.

The chronic inflammation of the toneils, which is the consequence of a distinctic tendency, is sciden seen before the fifth or sixth year. When the hypertrophy occurs in children of healthier constitution, it often begins earlier, being found in infants under twelve or eighteen months old. In has been suggested by Robert, that in such young subjects the enlargement may be a consequence of teething, and it is possible that the change in the tensils may have some connection with the general glandular activity which

is known to prevail at this period of life.

Martiel Asstory. - In scate tonsillitis, the inflamed tonsil becomes swelhe with inflammatory exactation. An increased production of spithelial calls takes place in the recesses of the gland. The crypts are distended with them, and the cells appear as crowny-looking masses at the orifices. Almost at the same time the lymphatic follicles swell and soften, and form showever which run together so as to give rise to a considerable collection of per. This is eventually expelled by one or more openings. The inflamnation then subsides, and the swelling more or less completely disappears. It widom happens that both topsils are attacked at exactly the same time. Countly, the inflammation begins first on one side, and partly runs its course before the torsal on the other side begins to suffer. There is also more or kes inflammation of the soft polisie and polisies of the feaces, and the salivary glands may porticipate in the inflammation and get hard and swellen.

In torsals permanently enlarged from chronic inflammation, the increase in size is due to an inflammatory hypertrophy of the sub-massas connectire tissue. The glands are enlarged and hard, and their surface is often

Symptoms.—The inflammation begins with a chill or even a distinct riger, and the child complaint of a feeling of drypess and aching in the region of the fances. Has temperature rises to between 102" and 103", and he books and feels ill. Often there is general acking and screness of the body, such as is experienced at the beginning of attacks of screen entury; the pulse is rapid and full, and the tougue is thirkly-coated with far. On impertion of the throat, the tensils are seen to be swellen and visitly red, and there is also reduces of the soft palate, availa, and pillars of the fances. The usula is not, however, swellen at the first, although

later it is apt to become ordemotous.

As the milmmutery process increases, the pain and aching at the back of the threat grow more distressing, and the discomfort is increased by a secretion of thick mucus from the inflamed mucous membrane. Deglatition is accompanied by a sharp pain, which often shoots up into the ears well side of the head, and all movement of the jaws is painful. The child a afreid or unable to awallow, and often an attempt to do so produces a choking sensation, and a return of the fluid through the now. Singing in the care and deafness are often present, and the roice of the sufferer has a peculiar mucal quality which is very characteristic. At the height of the disease, the temperature is often as high as 101°; the skin is most and

clummy; the pulse is rapid and compressible; there is a feeling of great

prostration, and the face is pule, haggard, and distressed.

If one tensil only be affected, at the end of five or six days a yellowish spot can be detected on the residenced and glossy surface of the giand. In a few hours, or on the following day, the abscess bursts at this point, and discharges a large quantity of thick pas, to the great and almost innucleate relief of the patient. Often, however, at this time, or shortly before, the opposite total begins to swell, and the discomfort, if it had partially abuted, returns.

The swellen gland may reach a large size. It can be felt enternally behind the angle of the jaw, and often seems to block up the whole passage of the threat. When the inflammation runs its course on both sides at the same time, there may be difficulty of breathing, and the face assumes an agonized expression of districts. Fortunately, any but a favourable termination to the complaint is excessively rare; and the child's friends any be consforted by the assumance that the security of the symptoms is out of all proportion to the actual danger of the illness, and that recovery may be expected with confidence. When the abscoss bursts, its puralent contents are almost invariably smallowed by the child; but the consulter of much of his distress, the relief shown in his face, the rapid fall of temperature, and the improvement in his general symptoms, allow us to infer, even without examination of the threat, that examination of the matter has occurred.

After discharge of its contents the gland begins to diminish in size; deglatition, although still painful is accomplished with greater case; the laggord expression of the face disappears, and the desire for feed begins to return. Often, at this time, a discharge of blood takes place from the abscess. The appearance of blood from the mouth may be a cause of great alarm to the stand's relatives, and it is well to warn them of the possibility

of its occurrence.

The duration of the disease is from one to two weeks, according to whether both tonsils or only one becomes inflamed. Convulsarior is short, and after the coordion of the attack, the child quickly recovers his

strength,

In a considerable proportion of cases, especially if judicious treatment is early adopted, the inflammatory process steps short of suppuration. The reduces then begins to diminish, and the swelling to subside, at the end of forty-eight hours, or in the course of the fourth day. In many of these instances, the red and amollen tonsils are speckfed over with gray patches from the secretion at the mouths of the follicles, and sometimes shallow nivers are seen on the inside of the cheeks and lips, or on the tangue, but rarely on the lonnis themselves. In this form of the disease, the felgile action is less high than in the supparative variety, but the depression and feeling of illness are fully as severe. When occurring in this form, totallitis is probably always a consequence of insuratory conditions. The cases are often met within groups, several innates of the same house or row of larges being attacked almost at the same time. Although included under the name of quincy, the disease is probably distinct in its nature from the supportative variety, and, if sustable treatment be adopted early, it can be reasily arrested.

In choose Appearingly of the tousis, the glands are enlarged and hard. They can be felt externally behind the angle of the jaw, and, on inspection of the throat, are seen as two globular bodies projecting towards one stother, so as almost to touch in the middle of the throat. The anterior surface is smooth and shining, but the internal face is irregular from the open-

ings of the glandalar recesses. Their colour is usually of a pule brick red, but when at all composted, as they are upt to be on the occurrence of the slightestghill they become of a sleeper tint, and yellow early masses appear at the orifices of the crypts. At these times, they often meet in the middle line, and the friction of the two bodies against one another may, as Dr. G. V. Poere has pointed out, be a cause of superficial alternation. One of the results of this chronic colargement of the glands is the frequent recurrence of attacks of inflammation, which, although amounting to no more than superficial pluryngitis, are yet a source of great disconfort. Usually, at least once in the twelve months, the inflammatory process is more severe.

and the patient posses through a regular attack of quiney.

A child who suffers from this chronic enlargement of the tonsile, presents many very characteristic symptoms. He has often an unhealthy appearance, being undersized, pole, and thus. The imperfect state of matrition in such policule is well seen in cases where one member of a lamily is alone affeeted. The fruil appearance of the child then contrasts strikingly with the robust and healthy look of his more fortunate brothers and sisters. It his been supposed that this imperfect performance of the autritive processes is that to the impediment to respiration set up by the swollen bodies, and the consequent insufficient combustion of waste-products in the body. I cannot, however, think this a satisfactory explanation of the phenomenon. It appears to me to be rather the result of the striking susceptibility to chills almost invariably manifested by these patients. Their gestric mucous membrane is therefore kept in a state of almost continual cutarris. As a consequence, digretion is laboured and imperfect, and the natritive pools of the system are insufficiently supplied. Such chaltren are often excessively irritable and restless. Their complexion is sallow, with a dark dis-solouration under the eyes. They deep budly at night, dreaming and balking incoherently. Their bowels are often confined, and their stools lightcoloured and offensive. Sometimes the face turns suddenly white, and the child complains of flatulent pums and of distention of the belly.

In all cases where the enlargement of the glands is at all considerable, the nurcous membrane in the neighbourhood of the tensile is habitually congested and relaxed. The child snores in his sleep; speaks with a thick and tone of voice, and may be duil of bearing from the tergod state of his Eustachian tubes. Slight hemorrhages often occur at night from the surface of the glands, and blood-stained saliva may flow from the child's spen mouth on to the pillow. Sometimes the posterior rares are almost completely closed to the passage of air. The nestrile then become fittened so as to narrow the massi spectures. In such children, the palate is often high and arched; the upper jaw is small; the teeth are crowded and overlap, and the front of the jaw is curiously rounded at the lips.

In extreme cases, the entrance of air through the larynx is impeded; often sufficiently so to induce a state of personnent collapse at the bases of the large. The lower end of the sternum, with the cartilages connected with it, is then forced backwards so as to present a cup-shaped depression at that point. The upper portion of the sternum is made prominent, and one form of pigeon-breast is produced. This variety of the pigeon-breast may be reality distinguished from a somewhat similar condition in the rickety shill. In the latter, the whole sternum protrudes, from softening of the ribs. In the farmer, the upper part of the breast-bone is prominent, and the depression at the lower part is the result of yielding, not in the ribs, but in the cartilages.

Parise of the benth is a common consequence of enlarged totalls, for

the glandahr recesses become filled with a cheesy, decomposing secretion.

Cough is also a frequent symptom. It is often distressing and paroxysmal, and when combined with the pallid, weakly appearance above referred to may give rise to fears of consumption. Such apprehensions are semethate rather confirmed than alloyed by the results of a physical examination of the class. In many such cases, a peculiar hollow quality of breath-sound, probably conducted from the planyon, is heard with the stothoscope at each supersepinous form. To an inexperienced observer, this sign may supgest consolidation of the lungs. There is, however, no dulates on percussion, and the abovemal quality of breath-sound is beard principally in expiration, and is greatly diminished, or even completely suppressed, when the child opens his mouth widely.

Dispusse.—Primary inflammation of the tonsile can only be mistaken for the secondary inflammation which occurs in scarlatina and dipletisms. In the first case, the absence of the characteristic exception at the end of twenty-four-hours is quite sufficient to exclude the infectious fever. But besides the rash, the appearance of the inflamed necessary numbers is very different in the two discusses. In scarlatina, it is more widely defined, and of a more brilliant red, than at the beginning of quimy; and on the set pulate the redness is usually practiform, which is not the case in tonsilling

In diphtheria, the ash-coloured leathery appearance of the false meastenne is different from the currly patches of sprincy; and in the former disease there is early swelling of the cervical glands. In inflammation of

the toneils these glands are not usually affected.

Progressis.—In quincy, the prognessis is rurely otherwise than favourable.

Cases are said occasionally to have happened in which sufficiation has resulted from the inflammation. Billiet and Burther have referred to such a case, in which a little girl, aged thirteen, died of sufficiation on the second day; but it is very shouldful if this was an uncomplicated case of quing, and the accident is one not greatly to be dreaded.

In cases of chaptic ethingcasent of the torsils, the glamb, if left slow, usually become smaller after pulsory. But while they remain smaller they give rise to so much inconvenience as well as induce so much interference with the nutritive processes, that measures should be always adopted for

their early reduction or removal.

Trentescal.—In every case of quincy it is advisable, as an important preliminary to further treatment, to clear out the boreds with a good mercurial purge, followed by a saline draught. Linecolonical positions, or a cold water compress, must be kept applied to the threat, and if old enough to gargle, the child may use a weak scintism of chlorate of potash sweetened with giveerine. If the case is seen early, aconite given frequently, in very small doses, is found in many cases to have a distinctly beneficial effect. It reduces the temperature, promotes the action of the skin, and often quickly brings the inflammation to a close. The tincture should be used in does of one drop in a temporahil of water every hour. Gusiarm is greatly period by some authors. It can be given in doses of three st four grains in a terspoonful of glycerine several times in the day; or the child may suck a guaracum lorenge every three or four hours. The salerlate of soils is another remedy which has been lately held up as a specific in certain cases of quirny. This drug, like the preceding, is especially adapted for cases which series under the influence of cold and damp, and may therefore be supposed to be allied in their nature to rheamatism. To a child of ten years old it may be given in down of ten or afficen graits every four hours; or half that quantity every two hours. If the salt to

suspended in mucilage flavoured with firsture of orange peel, and sweetened with spirits of chlereform, the resulting mixture is not impleasant to a child. If given sufficiently early, it is often found to shorten, in a remarkable manner, the course of the inflammation and prevent supposition. The old-fashioned treatment by sulines, with moderate does of intimonial wine, following the subspensable purge, finds favour with many practitioners, and is no doubt often very successful. Attention to the bowels, indeed, must never be neglected. A good dose of calcased, or gray powder, with colocyath or julippine, renders the after-course of the disease much less houseing, and, if all irritation of the throat is avoided, greatly helps the

Astringent gargles can only be allowed in the carry stage of the discuss. A solution of alism (twenty grains to the omice) may be used in this way, but is only adminishly if the februle action is mild, and if the case is seen within the first twenty-four leaves. At a later period, codinary astringent applications often do much maps have them good. There is, however, an exception to this rule, for brushing the surface of the inflamed tomals with the pure solution of the subsectate of lead is often attended with surprising relief to the discomfort. This application may be used once in the day, whatever be the period of the illness. Another application which is often of service is the historiconate of solu, applied in the powder. An ordinary throat brush, well charged with the powder, may be used to convey the latter to the tonsil.

Directly signs of supportation are noticed, the child should be made to inhale the steam of het water, and hot poultiess should be scalaboutly applied to the threat. If old enough, the child should be directed to gargle frequently with surm states, to which, if there he any foctor, a little Condy's fluid has been added. If necessary, the matter when it forms can be let out by a teach of the lancet, but in most cases it will be safe to allow it to first its own way to the surface. Still, if signs of dyspaces are noticed, or the swelling is very large, operative interference is advisable. After the abscess has been examined, quinties should be given in full slows.

The dist must consist at first of milk and broth. When the difficulty of swallowing becomes great, strong most ensure should be given, and the strength may be supported if the child appear very weak, by the brandyand ogg mixture, or port wine. In cases of the non-supportaine form of the disease, where, although the depression is great, febrile action is made erate, and the inflammation is accompanied by shallow alcors on the tongue and cheeks, chlorate of potash is very neeful, and may be given in deers of fro to ten emine every three or four hours. These cases also are greatly benefited by purgation, and Epson salts with quaine form a good combination. A child of twelve years of ago will take well two grains of quinane, with half a draches of sulphate of magnesia, and free drops of dilute sulphenomenic, energies bours. This treatment cleans the leaded tougue, and improves all the symptoms with rennekable quickness. In young children, too, a gissa of port wine, given quite at the logisting of the attack, seems often to have the power of preventing any further development of the comphoiat.

In the chronic form of tonsillar enlargement, it is of enfrence importance to improve the general nutrition of the child. It will be usually found on inquiry that he suffers from repeated attacks of gastric decongenent. Our test care must be to improve the condition of the digestive organs by the nearest recommended classwhere (see Gastric Caturda). A broad finned bandage, to protect the stomach from chills, is here of catesus importance,

Usually, when the gastric nuncous membrane has been restored to a healthy state, the general condition of the child improves, although the size of the tensils has undergone no dimination. Coddiver oil and area wine, or quinine and tenies generally, may be given to hasten the return of feel and strength. A little alcohol, in the form of light charet, is very useful in these cases. As special internal treatment of the swellen tensils, Mr. Lennox Browne speaks highly of the influence of a combination of sulphade of calcount and indoform (half a gmin of each), given three times a day, in redu-

cing the size of the glands.

Of local measures, no doubt the best and most effective proceeding is The tonsils having been removed, the tendency to caturth in a great measure subsides; the digestion improves; the child begins to regain firsh and colour, and the conjected state of the nucous membrane, which had been the source of so much discomfort and inconvenience, is at once relieved. The operation is a by no means painful one, and is followed by such immediate improvement that it should be recommended in every case. Office, lowever, the suggestion is not approved of by the parents. and other means of reducing the size of the glands will have to be resorted to. The tousils may be painted trace a day with a maxture of equal parts of tinct, indi and his potosse; or core a day with the pure tinet, with Powdered alum may be applied according to Quinart's method, rubling it into the gland vigorously with the fager; or the throat may be broshed twice a day with glycerine of famin. These applications are, however, of doubtful officery. I have used them myself, and seen them employed by others, but even if the size of the glands is reduced for a time by such means, the improvement is selden a permanent one. Dr. Morell Marketzie speaks highly of a puste composed of equal parts of caustic line and sods with spirit. This is to be applied to different parts of the smaller surface once or twice a week. Other constics, such as nitrate of silver, Yuman paste, and chloride of nine (in the stick) have been used, and the gulvanu-cautery has also been employed. By the use of these agents, small portions of the enlarged and toughened giands are destroyed on each application; but the size of the tonsils is but slowly reduced by this means -indeed, the patience of the child's relatives is usually exhausted before any definite results have been obtained. A more mpol method is that recommended by Dr. Gordon Holmes. A thin stick of nitrate of silver is pressed into the torsillar crypts, and worked round for a few seconds. Small sloughs are thus formed, which are som discharged. The process can be repeated every other day, and by this means, with little suffering to the child, for the operation is followed by but little external soreness of the throat, the size of the glands may be quickly and materially reduced Another plan is to inject a solution of ergotin (\$\frac{1}{2} = jes. to \$\frac{1}{2}\$) with the hypodermic syrings into the enlarged tousil. Three to five drops may be slowly introduced into the gland once or twice a week. The operation seems to cause some pain, and is so greatly drended by the child that it is difficult to prosvere with it for long together. I have never seen a case where the glands have been appreciable diminished by this means.

French authors recommend sulphurous boths as efficacious in reducing the size of the glands, but I manot speak from my own expensive of

the value of this method of treatment.

CHAPTER VIL

RETRO-PHARYNGEAL ARSCESS.

Connectors of matter occasionally form in the loose collular tissue at the back of the plurynx. The disease is of importance, as the abscess, by its situation, interferes seriously with the functions of requiration and deglatition, and gives rise to symptoms which, unless referred to their true engis, may be a source of considerable peoplexity.

than in after years, and during the first twelve mouths than at a later period of life. In eighty-nine cases collected by Gautier, nearly one-third

of the patients were infants under a year oil.

Sendulous tendencies appear to have a powerful industrice in favouring the occurrence of the distance. In the subjects of this disthesis, the abscess is smartines found to occur as a sequel of one of the ocute specific diseases—of surfatms, measles, diphtheria, or crysipeles. Caries of the corvical variebra, to which such children are prose, may induse it; and it may follow tousillitis ulcerations about the mouth, or occum of the scalp or lack of the neck. In many cases, however, the cause of the malady is obscure. It has been attributed to exposure to cold, to the action of imitarts, such as too hot liquids, and to injury from fail-bones, pins, and pointed spiculae of home inadvertently smallowed. Indeed, such substances

have been occasionally discovered in the contents of the abscess.

Metal distance. - The collections of matter situated behind the posteries wall of the pharyax vary considerably in size. Sometimes they are as large as a hen's egg, and may even sutend for a considerable distance spearls and downwards. They are not always evated in the middle line; indeed, more commonly, perhaps, they are placed at an appreciable distance to one side. They are almost invariably single, and their contents comist of purulent and cheese matter. Sometimes the abscess may open spontangently. In other cases it may set up ulceration in a large vessel, such as the curotist, and give rise to fatal homoerlage. Occasionally it has been known to force its way along the cellular tissue of the neck, and open title the mediastinum or the pleural cavity. In a case which was under the owe of my colleague, Mr. Parker, in the East London Children's Hospihi—a little boy lifteen months wid—the absects formed a floctuating swelling, the size of a hou's egg, below and behind the angle of the lower paw on the right side. There was also a soft, custiony tumour at the back of the pluryux. After the abacess had been opened externally, pressure on the pharyageal swelling caused pas to well up through the wound.

In young infants, the primary sent of the suppuration appears to be the hupfantic glands which lie along the posterior wall of the pharyur. Kormens states that with his finger be has been able to detect enlargement of these glands in certain cases of thrush, alternative stomatitis, orana, etc., but that only in one instance has he known the inflammation to pro-

cool to supportion. Fleming too, in 1850, attributed the portplanya-

goal suppurations to influentiation of these glands.

Symptoms.—Unless the retro-plarynged abscess he due to caries of the cervical vertebra, the case seldom comes under observation until some importance to breathing has attracted the attention of the mother. The earlier symptoms are usually so indefinite that they excite very little notice. If, however, the purelent collection occurs as a consequence of supportation of bone, the formation of the abscess is proceded by symptoms indicated the original cuties of cories of the vertebra of the neck. These symptoms have been

described elsewhere (see page 178).

affected by the presence of the abscess.

Pain or difficulty in avallowing, is prohips the first symptom observed. The presence of the pharyngoul aveiling so interferes with the prising of food that the patient may have the greatest difficulty in taking nonishment. Liquids can often be avallowed, but solid matters pass only with great effort, or not at all. Sometimes the electric appears to be complete. In these cases, the child, if an infant, suchs engerly for a few seconds, and then suddenly throwing back his head, discharges the fluid he has taken through the mouth and nose. As a consequence of the impediment, scripes interference with nutrition invariably follows, and the child losse fieth appetity. It must be said, however, that cases are sometimes met with in which no difficulty of deglorition is present, and nutrition appears to be little

Dyspious is another symptom which is usually to be noticed, and often occurs at the same time with the preceding. There appears to be direct interference with the entrance of air into the large, for at each inspiration the child analoss a curious grating or whistling sound and at the same time the soft parts of the clast suck in, and the epigostrium is retracted. The dyspoors varies in degree. It is subject to paroxymal seasorbatron, but in the intervals the respiration is for from tranquil. When the child lies down the breathing is always especially difficult, and the dysposes is therefore particularly noticeable at night. In severe case, the principle obliged to misc binnedly in bed in order to because with any approach to ease, and may often be found atting up in his cut with his legs dualited beneath his body. He cross fratfully if distributed or invested to take either food or drink, and will not willingly make any attempt to availors. The dyspoors is always increased when pressure is made externally upon the

Cough is usually present, generally dry and hard, but sometimes puroxymal like the cough of pertuesia. The voice has a rank quality, especially if the swelling is high up in the pluryon. It is soldon bures if the

case be uncomplicated.

heyns.

Stiffness of the neck is a characteristic symptom, for morement of the head upon the shoulders is always painful. Consequently, the child helds the head in a curiously rigid way, sensetimes inclined to one side or best somewhat backwards. When the neck is examined, it is often found to be excellen. Sometimes the depression behind the angle of the jaw is oblicented, and Mondière points to this as a characteristic symptom. Sometimes the laryax is pushed forwards, or forced to one side out of the middle line. Pressure upon the neck or laryax is always painful.

On impecting the throat, a swelling can usually be seen at the back of the plaryns, protrolling from beneath the soft pulste, and seeming to touch the back of the tongue. The mucous swednesse may not be altered in colour, and often there is no redness of the funces. On touching the swelling with the finger, it is usually felt to be soft and elastic this wasc. filled with fluid, but may feel firm like a solid growth. The finger should be passed round the borders of the prominence so us to define its limits. The welling does not always come into view when the mouth is opened; for not only is it often obscured by more or less frothy mores, but its samation may be such that it is not readily discovered. If, then, we suspect its mistence, the finger should be rapidly passed upwards to the lock of the nose, and downwards behind the glottis. By this means the position of the abscess can usually be ascertained.

The above symptoms are to be discovered in most cases of the discove; but the course and form of the illness vary greatly according to whether

the supportation is an acute or chronic lesion.

In an acute supportation behind the pluryax the symptoms are very much more pressing and severe than in the more chronic form of retropharyageal absence. The disease generally begins with high fever, severe leadarle, and exenting. After a few days, stiffness of the muscles of the neck is noticed, with a poculiar fixed position of the bend, and there may be swelling of the neck and great tendencess. In some cases, the stiffness artends to the muscles of the jaw, so that the month can be opened only imperfectly. At the same time, or soon afterwards, there is difficulty in availowing and the breathing is laboured and stertorous. If the child is labil foun these symptoms are increased, and often the recumbent position induces a state of somnolence approaching to staper. If the symptoms are not relieved, the condition of the child becomes more and more distressed. His face is availed and livid, and the jugular trains are prominent. He lingues for a few days in this state, and then also, exhausted from inaution, or sufficiated in a purvoyer of dyspram. Beath is often preceded by a sesion of convulsive attacks.

In the more chronic cases, there is little or no fever, and the symptoms generally are much less urgent. There is, however, usually a noticeable

interference with nutrition, and the loss of fiesh is considerable.

The duration of the disease varies greatly. In some cases it runs a very sente course, and ends fatally in a fortnight or three weeks. This form is most common when the supportation occurs as a sequel of fover. In other cases, the diverges and diverting a continue for months before

their true significance is realised.

A little girl, aged three years, was brought to me at the hespital for difficulty of broathing. The mather stated that two years previously, while teething, the child had suffered from an eruption on the head. Thus had been quickly followed by a serelling at the right side of the neck, which after growing larger for two mouths, had burst. Very shortly afterwards the breathing had been noticed to be opposised, and the respetation had begun to be accompanied by a peculiar whistling or rattling toise. This symptom had continued ever since, and was always weese at tight. The child was said to sleep very beauty, with her ever only partially closed. Sometimes she had seemed to have a difficulty in swallowing.

When first seen, the child was lying asleep, resting on the right side of her clost. She was seenling probably about the head and nock. Her her was flushed, and the eyes were only partially closed. The mosth was spen, and the nares were motionless in respiration. At each breath the intercostal spaces sunk in deeply, and the epigratrium was depressed. With each impiration a peculiar grating noise was heard, which seemed to proceed from the throat. The expirations were less noisy, but still abnormal. The glands along the edge of the sterno-mastred, and those below the jaw.

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were enlarged and painless, and the larger, and trackes seemed peaked out of the middle time to the left.

On inspecting the fances, a swelling about the size of a piever's egg could be seen at the back of the pharyte. On pressing this with the fager, it

felt firm like a solid tumour.

The swelling was punctured with a large invest and causile, and half an ounce of thick pus was evacuated. After the operation the breaking became quieter, and evallowing was effected without difficulty. The abscess continued to discharge for some days and then healed. When the child left the hospital she seemed well in health, but some thickening remained at the back of the pharyne.

In this case, the disease had histed for two years, and was apparently the consequence of slow softening of a cheesy gland at the back of the plaryer. The certical glands were also enlarged and execus; and from one of these, seated behind the angle of the jaw, a quantity of cheesy nat-

ter was accoped out by my colleague. Mr. Berses,

Wintever be the length of its course, a retro-plaryngeal abscess, if uprecognised, generally terminates in death. As has been before remarked, the child recally dies sufficeated in a paroxysm of dysprem, or gradually wastes away from starcation and exhaustion. Even spontaneous bursting of the abscess appears to be attended with great danger, and cases are reported in which sufficeation has been the consequence of the passage of the

purulent matter into the tracken.

Disposal.—Amongst the various causes of dyspacea in the child, it must not be forgotten that retro-pharyngeal abscess is our; and in every case where the breathing is difficult and stortorous, the pharyna should be examined as a matter of reutine. If this be done, the dismost is not likely to be overlocked for a finger passed to the back of the plaryna at once detects the presence of the abscess. Moreover, information may be sensitives gained from mere inspection of the rock. Any unusual preminence of the trackes, or displacement of that take to the right or left of the middle line, suggests an entro-laryngeal cause for the dyspace. So, also, if we find the child sitting up in bed and refusing to be down; or if had down, starting up again in an access of sufficiently not should suspect external pressure upon the larence. The more characteristic supertons are: Stiffness and swelling of the neck, and deficulty of swallowing, combined with orthogons and strictleous breathing. The most characteristic sign is a swelling at the lack of the pharyna, which is not, indeed, always to be sen, but can invariably be felt by digital exploration.

The decase is more likely to be missipprehended in the acute than in the chronic form; for the violence of the symptoms, the lividity of the face, the urgency of the dyspacea, and the stertorous character of the breathing, suggest the presence of membranous croup. But in that disease, stertor is present from the beginning; the dyspacea is not increased by pressurmade upon the tracken, and is relieved when the head is low; the view repidly becomes hourse and then whispering, and unless the planyas is

the seat of talse membrane, there is no difficulty in avallowing.

(Edema of the glottis also presents many points of similarity with abscess of the pharym; but in the former case the strider is only nurked in inspiration, the experation being noiseless; and when the finger is passed into the threat it detects no tuniour, but can feel the thickness opigiottis and the sweller any-epigiottidean folds. Still, the two discussmay be present together; but if a tuniour can be felt at the lack of the planyur on digital examination, the nature of the discuss cannot be doubtful.

Programs.—If the absence is detected in time, the prognosis is favoura-He. When death occurs in this disease, it is usually in cases where the gauge of the symptoms has been overlooked, and no attempt his been made to relieve the child by the only means which are likely to prove effectual. The worst cases are those in which the absence is the consequence. of careous disease of bone; but even these may end in recovery if the matter be evacuated before the child has become exhausted,

Toutaged.—In the treatment of retro-pluryageal abscess, no time should he lost. Directly the temour is recognised, it should be opened, whether fluctuation be present or not. In order to avoid any risk of penetration of the pas into the laryny, it is perhaps rafer to use a large troon and canula; but the abscess may be opened with a knife without danger if care be taken to bend the child's head promptly forwards when the incision is made. The bistomy should be guarded to within half an inch of its point by winding adhesive plaster round the blade. The opening must be made as near the moddle line as possible; and the instrument may be pushed holdly forwards, for the pus often lies at some distance from the surface. If a trocar be used, the abscess sometimes retills, and may require a second puncture after a few days.

The general health of the child must be attended to. Good diet and a certain quantity of strandard should be allowed; and he may take quinine and cod liver oil. When convalencent, the patient will be benefited by a

visit to the sessible.

Part 9.

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DISEASES OF THE DIGESTIVE ORGANS.

CHAPTER L

INPANTILE ATBOPHY.

Is examine already, or the alow wasting which is a familiar symptom in hand-fed babies, is one of the commonest causes of death in sarly infancy. The child causes to digest his food—possibly be has never begun to do so, gradually dwindles away, and after a longer or shorter period, dies with all the symptoms of starration. This condition, which, under the name of "marriennes," finds a large place in the mortality returns of all countries, is a perfectly carable complaint, and may be arrested at almost any staps by the exercise of judgment and care in the feeding and general management of the infant.

Constition, - Infantile atrophy is the consequence of insufficient neuralment. The child wastes because he is starved. But it is not to notual lack of feeding that the starvation is usually to be ascribed. A talk feel from a breast which acceptes malk poor in quality and insufficient for the child's support, will, of course, grow slowly thinner; but an infant supplied largely with firmaceous compounds from which his feelile digestive organs fed to derive even a minimum of noorishment, will waste with startling rapidity. Starvation is then a relative term. The tissues may be starved, although the stormen is regularly filled. In every case, the matrition of the infant is dependent upon his power of extracting a sufficiency of nourishment from his so-called "food." It may seem unnecessary to insist upon so self-evident a matter; but in practice it is common to find a diet persisted with which the infant's stomach rejects, or his tissues ful to assimilate. Many a haby's life is sacrificed through the inability of those about the child to understand that feeding and nourishing are not quite the same thing.

For efficient neurishment, four classes of substance are indispensable, viz., albuminates, hydro-carbonates, fats, and salts. It is further necessary that these should be presented to the child in such a form that they can be digested with case. The most perfect food for infants—the only size, is fact, which can be relied upon in itself to furnish all these requirements—is noils. Milk contains nitrogenous matter in the curd, fat in the crosso, besides engar and the salts which are essential to perfect nutrition. In the milk of the mother or of a good nurse the new-born infant finds these elements combined in exactly the proportions best sclapted to supply all the sants of his system. In the nulk of animals, the proportions deviate more or less widely from the human standard. Cow's milk, especially, contains a larger proportion of card and crosm than is found in human milk, but less argar; and although to an exceptionally sturdy infant this difference may be inematerial, for a child of animary powers it will be necessary, by suitable preparation, to bring the milk into closer resemblance with the

natural diet of which he has been deprived. The chief obstacle to the direction of cow's mak by young balties is not, however, the mere difference in the propertion of the several constituents. Were this so, dilution with water and the addition of sugar of milk would be sufficient to perfect the resemblance between the two flaids. A more important difference is the deaseness of the elet formed by the curd of cow's milk. Ample dilution with water does not affect this property. Under the action of the gustric juice, the particles of casein still run together grie a solid, compact bump. This is not the case with milk from the breast, Human milk forms a light, looss forculant clot, which is readily disintegrated and digested in the stourach. The difficulty which even the strongest children find in digesting cow's milk, is shown by the masses of hard rund which a child fed exchangely upon this diet passes daily from the howels. This difference between the two milks is answerable for much of the trouble and disappointment experienced in bringing up infants by hand. But it is not merely new-born infants for whom a diet of cow's milk is inappropriate. Gastrie and intestinal disorders often date from the time of wearing; and this is partly the consequence of an about change from barrow to cow a milk in cases where little or no cure is taken to make the new diet a digestable one. The heavy card of cow's milk is often difficult. of digestion, even by children of ten or twelve months old, if they have been secustomed only to the breast; and unless measures are adopted to hinder the firm clotting of the casein, serious dangers may arise.

The difference in the constitution of the milk of the woman, the cow, the me, and the goal, are seen in the following table prepared by MM. Ver-

tois and Beengarrel:-

	8p. Gr.	W ster.	Solida.	Stepse.	Caseth and Ear tractions	Ballet	Salta
Woman	1032.67	880.08	110.92	43.64	39.94	26.66	1.28
Cor	1033,38	864.06	135.94	38.03	\$5.15	36.14	6.64
American	1034.57	890.12	107,88	50,46	35.65	18,51	5.24
Gent	1033,53	844.90	153.10	84.91	53.14	36.87	6.18

The nulk of the ass approximates most nessity in composition to that of the lumns breast, and is much more digrestible than the milk of the cow. The goat yields a milk tehich chemically resembles very closely that of the cow, but in practice it is found to be far more digrestible by the child. There is no doubt due to the looser riot formed in the stormen by its congulated curd.

As cow's milk dilated with water is considerably less digestible than the

milk of the bumon breast, it is not surprising that a weakly child should fail to derive sufficient neuroshment from such a diet. If he he fed with large quantities of farinaceous food, his difficulties are still further incrossed. The new-born infant has only a feeble especity for directing starch. His salivary secretion is excessively sently, and his panerous can scarcely he said to formish any secretion at all. According to the experiments of Korowin, of St. Petersburg, it is not satisf the end of the third month after birth that the panerestic fluid is found to have any superciable action upon starch. The two secretions upon which the digestion of starch chiefly depends are therefore almost completely absent in early infancy. Tet it is to a being quite unprepared by nature for this diet that farinaceous substances under the modesding name of "Infants' Foods" are so universally given. Many takies are fed with them exclusively from their hirth; others take them in large quantities as an addition to the breast-nulk. In either case, the meal in in great part undigested, and gives rise to much flatslence and pain in its passage along the alimentary canal. It must be borne in mind that the effect of an indigestible diet is not marely the withholding of nourishment. To the weakness of starration or semi-starration must be joined the additional weakness induced by enturn of moves membrane from the constant passage along the bowel of undigested and fermenting food. The irritation thus set up gives rise to repeated attacks of comiting and diarriess; and even between the attacks although the irritation is for the time less severe, the child is restlem and smoonfortable, crying and whining, and unable to aleep from the colicky pains in his beile. Unfortunately for the infant, this consequence of his unsuitable diet is often mistaken by ignorant or too anxious attenduats for signs of hunger; and while the poor sufferer is still labouring to dispose of his last ment, mother supply of food, which his craving forces him engerly to sentlow, increases his difficulty and disconduct. It is not, then surprising that the infant, extracting no nourishment from his frequent meals, grown daily thinner and more feetile, and sinks at last, worn out by purging, pain, and want of sleep.

The symptoms of indigestion which always precede the more prononneed signs of infantile atrophy, sometimes evens on spile sublenly and unexpectedly in an infant who has been fed with judgment, and has at first appeared to thrive. The falling off is due, in the amounty of cases, to some eneral derangement of the stormach and bowels which induces an seid-change in his food. The chibl consequently course to be able to digest his milk. The fluid undergoes formentation in his storach, and graerates an acid which irritates the delicate mucous membrane and increases the disturbance of the digestive organs. Severe symptoms my often the consequence of this indigestion, so that, unless timely measures are taken to avert the danger, the child's life may be excrificed. An attack of gastric extern, induced by a slight chill, is the commonest cause of this andden indigestion; but sometimes the demagement is the result of seasfeeding, the child's meals being too large or too frequently repeated; or, again, the feeding apparatus may have been neglected, so that make pet into a dirly, sour bottle, has begun to ferment before the child smallows it In warm weather, milk soon becomes sour, even in clean vessels; indeed, if some time have clapsed since the milk was drawn from the under, it may be delivered at the house in a slightly acid state, although appearing

to be perfectly fresh to the eye, the smell, and even to the taste.

There is one other cause of infantile indigestion and borel complaint which should be mentioned, as the fault is a common one. In homeholds where it is the custom to prepare for the infant in the morning the whole day's supply of food, an acid change in the mixture almost invariable takes place, so that in the afternoon or evening the food is no longer fit for the child's consumption. The change may occur without necessarily producing any afteration appreciable by the senses. Test paper will, however, show widity, and the microscope will probably reveal bucteria in active morner.

A derangement of the stomach and bowels, occurring stablealy from any of these causes, not only interferes with the infant's natrition for the time, but often produces much more serious consequences. It may set up a disorder in the digastive system which is never afterwards recovered from and start a process of gradual wasting which ends only with the death of the child. It is, indeed, in insidents of this kind that the chief danger of artificial feeding consists; for a diet arranged originally with one and judgment ceases to be appropriate in these altered conditions. An immediate change is imperative if the demagement is to be remolited; and for some time afterwards a careful watch must be kept over the in-

furt's digestion, lost the disorder return.

Infantile strophy is selden seen to any serious extent in infants at the becast, but nometimes a certain degree of malnutrition is observable in babies who take no other food. This may result from different causes. An infant may be consequed to a wet-nume whose own child is much older than her adopted suckling. It is well-known that, as time passes, human milk becomes proportionately richer in card and croun. An infant, newborn, and with naturally feeble digestive power, put to the breast at a late period of lactation, may consequently full to thrise; or may even suffer from indigestion and bowel complaint through the rickness of the milk. Again, in some women, the milk, although alemdant, is of poor quality, and invifficient for the support of a strong baby, so that the child soon above sons of deficient nutrition. Human milk is also affected by dietetic and emotional causes, and the secretion is apt to be influenced by the peneral state of health. There are many reasons, therefore, why a child, even while at the beenst, should be subject to caveal demagements. Still, these are usually triffing, and soldom produce any serious effect upon his nutrition.

It sometimes happens that a mother's milk is not well enited for the tourishment of her offspring, even in cases where the secretion is copious, the child a sturdy boy, and the health of the mother in every way satisfactory. Some years ago I was asked by a gentleman to go and see his shild -a little boy of even months of age. I found that the child had been suffering for some weeks from severe abdominal pains. He was excessive by peerish and freshil, and at night would wake up with a scream, and treat about his body under the influence of severe griping pain. His bowels were very confined, and the motions consisted almost entirely of card. He was taking nothing but the breast. Apericute had been found to relieve the child for a time, but the symptoms always returned when the effect of the purgative had passed away. Whenever the breast was stopped for a fee days, he immediately improved, but relapsed as soon as suckling was resumed. The child had lost flesh and was evidently suffering from his inability to digest the card of his mother's milk. It was therefore a matter of great importance to enable him to do so; otherwise he would have to be wested, and fed in a different way. The mother had herself, by taking mines and other medicines, and by making many medifications in her diet under melical advice, endogroured to after the quality of her milk, but without **FEDORIDA**

Several methods of remodying the will were tried. The intervals between the times of suckling were increased so us to give a longer period for digostion; but this charge had no effect wintever. Alternate usuals of burleywater were then given from a feeding-bottle. By this means, the quantity of milk taken by the child in the course of the day was diminished, and the interval between the times of suckling was still further increased. No improvement, however, followed the alternation. The graping pains still continued, and the constant fretfolness of the child was most distressing to the mother. The plan was at last adopted of giving the child burleywater from a bottle immediately before he took the breast, in the loop that by this means the milk might be diluted directly it reached the storach. This method succeeded perfectly, and the child had no further implement symptoms.

In this instance, the infant's stomach was in a perfectly healthy state. The fault by in the mother's milk, which was too leavy for the child's powers of dipertion. In the large trajectly of cases of indigestion in infants sound at the breast, the fault is in the dipertire organs of the child, an attack of gastric cuturit having rendered han for the time incapable of diperting his mother's milk. In these cases, the indigestion is a temperary falling and is easily remedied by suitable treatment. Without judicious management, the decangement may be prolonged indefinitely; and it not unfrequently happens that the mother is directed to want her haby under the matalen

notion that her milk is unfit for its support.

Morbid Anatomy.—In cases of death from infantile strophy, the tissues are found excessively masted, and there is complete absence of adipose tissue from the body. The general pethological appearances are such as have been already described as common to cases of thrush (see page 572).

Symptoms.—When a child at the breast depends for his support upon a smity supply of poor milk, he suffers are pain but wastes persistently. The infant is previal from hunger, and at times crise violently. For the same reason he sleeps little, and at night is very troublesome. In the day-time he often lies quietly sucking his fragers until they are raw. His fortunelle is level to depressed; his skin is moist; his howels are confined; the motions scanty and often almost solid. He soon becomes puls and flabby, and does not grow. If the milk, although poor and watery, is abundant, the child frequently requires the breast. He sleeps much, and often is found a sleep with the nipple still in his mouth. This, indeed, is a consequence of watery milk. If noticed in a child who is not theiring, but in whom no positive damagement can be discovered, measures should at once be taken to change the nurse, or supplement the breast-milk by a mitable dist

In hand-fed babies, infantile atrophy is often seen in its most extreme degree. A child fed with unsuitable facel is not only started, but is keps in a state of continual distress; so that we find persistent wasting conbined with symptoms more or less striking of gustric and intestinal dis-

turbance.

The loss of flesh is noticed from the very beginning. Its empidity depends partly upon the kind of food chosen; purtly upon the natural strength of the child, and his councity for extracting nonrishment from his unwholesome diet. A puny infant, fed with large quantities of arresroot, or other equally impropriate food, wastes very rapidly, and at the end of two or three months, if he lives so long, may actually appear to have made no advance in size or in strength since his birth. Such at the fint is pule and missembly thin, his skin is dry, and has a faint rellow that; his eyes are hollow; his cheek-bones project; his lips are field, and their slightest morement shows a deep furrow entireling the corners of the mouth; his expression is uneasy and happind; his feet and hands are habit ually cold, and he whites and cries fretfully for hours together. These children often have a raterious appetite for food, and will estallow greathly whatever is offered to them. The meal, however, produces merely a temperary relief, and as seen as the graping pains to which it gives rise make themselves fellt, the child's wailings are renewed. The abdominal pains excited by the undigestible nature of his food are often very severe. The adapt may become quite stiff and rigid from his suffering, and several with white, drawn face and staring eyes until exhausted. Sometimes the miping gives use to a convolute lift, although this is rure, but the irritation of the bowels, and arbitra, not unfrequently excite signs of necessariatation; we notice endden starts and twitches, a slight squint, a percent rotation of the cyclail upwards, and contractions of the ingers and ton.

Emptions on the skin, such as stroploshes and articaria, are common; and in the later stage of the illness, aphthes or thresh any appear in the

mouth.

The state of the bowels varies. It is probably dependent upon the degree to which the mucous membrane is milated by the child's unsuitable list. If this instation be only moderate, the bowels are usually confined. The indant is restless, and may be noticed to be feverish at night. His tourns is conted with a thick white fur. He is evidently in a state of great disconfert, for his temper is previale and fretful, his movements are measy and jerking, and he occasionally breaks out into piercing rries, drawing up his kness and twisting about his body under the influence of abdominal pain. At night the griping is especially violent; the child acarrely sleeps at all, or if he he quiet for a moment in uneasy sleep, he son starts up again, screening with a fresh attack of pain. The motions are scurty and rare. The bowds sometimes remain confined for twentyfour hours or longer, and when they are at last relieved, hard, clay-coloursel balls, ringed with green minous, are expelled with great effort and Smining. These balls consist of hard card and farinaceous matter. A full dose of easter-oil, which clears away the earst, alloys the symptoms for a time; but norally, if the same diet be paraided in without any charge, they return in a day or two, and the child is in the same distress as infere

In almost all cases of infantile atrophy, the ordinary uniform course of the derangement is interrupted by intorcurrent attacks of vomiting and flustion. Those attacks not only greatly increase the capility of the wating but, if of great secority, may bring the illness abruptly to an end.

Treablesome venting in a young buby, the consequence of gustne ratanh, is a very serious allment. All food swallowed is instantly returned, and clear fleid, like water, or bile-stained mucus, is occasionally spetial. The vomited matters, and even the breath of the child, have an elimine, sour small. The belly is swallen and often seems tender; the lands and feet are very difficult to keep warm; the eyes grow quickly hollow; the life close imperfectly; the complexion is sallow or half journiced, and the fortunalle is deeply depressed. At first the tongue is thickly larned, later it is apt to have a red, glassed appearance. The child is very bettal. He soon becomes for weak to cry louisty, but whimpers feelely to kenself in a pitiful way, and searcely seems to skeep at all. If no distributions complicate the adment, the bounds are confined, and the patient often makes to be disturbed by flatalence, for he draws up his legs mensely.

with a troubled grimmer. If treatment do not succeed in checking the disorder, the vomiting continues, and is excited by the least movement. The complexion becomes earthy, the heads and feet grow purple, and the temperature in the section may fall as low as 96° or 97°. At this period, thrush nearly appears in the mouth, and death may be preceded by

symptoms of spurious hydrocephalus.

Steady, persistent consiting such as has been described, is less commonthan are shorter attacks of sickness accompanied by diarrhers. These are
apt to occur in children at an early period of the stropby, and must be
looked upon as an effect of nature to relieve the alimentary ental of its
unwholesome hurder. It is only at a later period of the illness that they
are upt to become obstinate, and when thus confirmed, the nilment is very
difficult to overcome. A channie distribute, such as is elsewhere distribute
(see page 613), often arises in the course of infantile atrophy, and, if not
treated judiciously, determines a fatal issue to the illness. In most case
indeed, death is the consequence of a persistent looseness of the borels
which nothing will arrest. But, in an infant reduced to a weakly state by
a long course of impropur food, any none ailment, bosoner apparently
trifling it may be, will often prove fatal. A new symptom occurring at a
late period of atrophy is therefore to be regarded with very serious apprehension.

Dispress.—A state of extreme emeciation may be present in the infart as a result of other cances than injudicious management and unwholescope feeding. Infants, the subjects of inherited syphilis, are often excessively pure and feeble, and scute tuberculosis may attack a child of a few

months old and gracely impair the natrition of the patient.

In the first case, the symptoms induced by the syphilitic poises are sufficiently distanct. The child stuffles and crice housesty. His shin is dry, wrinkled, and of the colour of old pareliment. It is sprinkled over with the characteristic coppery or rust-coloured spots, and the buttorks and perineum, often, also, the genitals and upper parts of the thighs, are the colour of the fean of hum. Mincon tubercles are probably to be discovered at the margin of the arms and the lips. The corners of the month are fissured, and the nostrile red-looking and excernited. The bridge of the nose is flattened, and an examination of the belly will probably detect chlargement of the sphere. None of these symptoms are to be found in simple infantile atrophy. The carthy tint of the face and body scoretimes resulting from chronic digestive trouble is very different from the purchanent-like line of the inherited discuse; strophulus, arising from the size cause, our headly be mistaken for the coppery spots of syphilis; and bearsness, suffing, and the other symptoms which have been enumerated, are never the copsequence of weakness and wasting, however profound.

In scate tuberculosis, the temperature is elevated, and a therassector in the rectum will be found to mark 100° or 191° in the evening. In infantile atrophy, there is no pyrexia; on the contrary, the boddy heat is usually lower than in health. Moreover, in the former disease, the child coughs, and even if the langs are not the sent of preumonia, a children rhondoms will be discovered here and there about the chest. In tuberculosis, too, a slight amount of orderns of the legs is almost invariably

present in the infant.

Syphilis and inherentosis having been excluded, the diagnosis is easy.

The wasting must be due to chronic digretive decongement, or to usualable food, or to both of these cames combined. In the case of either
chronic vomiting or chronic diagrams, the characteristic symptom of these

derangements will be present. Still, in many cases of malautrition, where the wasting is extreme, there is no irritability of stounch, and the bowels is habitually confined. In these cases the child is psecish and fretful. His belly is distended, and his skin dry and dull-looking. The most line entircling the corners of his month is well-defined. His feet are often odd, and the bodily temperature in the rectum is sub-mernal (97"-97.5"). His stools counset of taxed light-coloured balls, or of undersed purity-like matter. The child is subject to attacks of abdominal prin, and is very noisy and troublesome at night.

Progressic. Unless the infant be reduced to a state of extreme weakness and depression, the prognosis is not unfavourable. It is often surprising to mark the immediate improvement which takes place when the child is put to the breast, or is supplied with a feed he is equable of digesting. If signs of spurious hydrocephalus have been noticed, if the mouth he the east of thrush, or if a chronic distributa have been established, the prognosis is more serious, and, indeed, these cases often and unfavourably. Chronic veniture, however, can usually be arrested by judicious treatment, if the infant retain sufficient strength to respond to the restorative mean-

ures adopted.

Peerson.—In endeavouring to improve the nutrition of a child who is suffering from infantile atrophy, we have to take into account the degree of makes of the infant, and the more or less disordered state of his digrestire argain. If a set nurse can be procured, a return to the breast, if the child can be persuaded to take at, usually arrests at core all unfarourable symptoms; especially, if the alteration in the mode of faciling be nided by an aperient dose of easter-oil, followed by an antacid and stounchie mixture. In more cases, however, this method of treatment is not within our reach and we have to trust to a judicious revision of the child's dictary and general management.

The successful searing of an infant by artificial means is not a difficult matter. It requires intelligence and tack; but, above all, it requires watch falses. If we are vigilant to detect the first signs of disconfort and aridity, and at once modify the dist accordingly, we may be succ of preserving a healthy tone in the stomath, and warding off all the accidents to

which a child less carefully nurtured might possibly succumb.

During the first month after birth, the infant usually is able to obtain toms milk from its mother's breast. This, however, may have to be supplemented by other food, and sussetimes the babe is forced to depend satirely upon artificial feeding from the beginning. For the first six weeks he may be fed with consensed milk diluted with water, or thin burdey-rater, in the proportion of one temposenful of the milk to the half bottle. Preserved milk at this time almost invariably agrees well. Care must, however, be taken to use only milk from a tin which has been nearly opened; for when exposed to the sir, the milk, although still apparently frost, regulity breeds bacteria, and becomes unfit for the child's consumption. In hot weather, too, the barley-water should be freshly made twice in the day. Like the condensed unik, it must be kept in a refrigerator or other cool place, and should never be heated to the beiling point after it has once been made, as to do so excites rapid fermentation.

After six weeks, or, at the most, two months, have showed from birth, the child should be put upon row's milk. It is important, especially in warm weather, that this should be perfectly fresh. If slightly said from keeping, and often is when delivered at the license, the neidity should be neutral-

by the midition of a little earbonate of soils.

To make this milk an efficient substitute for bonnen bremst-nilk, it will not be sufficient to exercten it with sugar and dilute it with water. It is necessary, in addition to prevent the firm clothing of its cond under the action of the gastric juice. This may be done by using line-water to dilute the milk, adding it in sufficient quantity to partially neutralise the gastric secretion, and thus in a great measure prevent coagulation in the stomach. To do this effectually, at least a third-part of the mixture stockly eccusist of lime-water. To two tablespoonfuls of freedomlis, add an equal quantity of bot filtered water, and alkalinise by two tablespoonfuls of lime-water. The intent should suck this food from a feeding-bottle. In imperature when taken should be 26°. If too cool after being prepared the feeding-bottle should be allowed to stand for a few minutes in a little basinful of bot water.

Another plan by which the conciu of cow's milk may be made digosible, consists in mechanically separating the particles of cord by the shiftion of some thickening substance, such as gelatine or lurley-water. This method of preparing the milk is to be preferred to the previous one, as it leaves the pastric juice unaffered, and does nothing to impair the child's digestive power. It marely brees the card to form a multitude of small clots, instead of running together into one large, dense lamp. For a child of two months of age, the milk should be diduted with an equal quantity of burley-water, and be sweetened with a small beaspectful of sagar of milk.

The proportion of wilk taken by the infant for each meal should be gradually increased as he grows obler. From a half, the quantity may rise by degrees to two-thirds, and then to three-fourths, and a larger quantity of milk-negar may also be added.

Barley-water much; disagrees even with the youngest infants, although in them the capacity for digesting storch is very feeble, as has been already explained. If preferred, however, instead of burley-water, the milk may be diluted with plain water, and the thickening naterial be supplied by a temporaful of isingless or gelatine. Mellin's food, too, may be used from the limit, and is almost always well digested.

Farmaceous matters, unless granted by malt, as in Mellin's food, should

not be given to a child younger than six months.

The milk prepared is one of the ways described must be given in suitable quantities and at regular intervals. Six or eight tablespeculals will be enough to make a need for an infant of four or free weeks old. The child should take his food half reclining, as when in his mother's area, and the bettle must be removed directly its contents are exhausted. After taking his food, the child should should should should any sign of fretheless or discomfort at this age must be taken to imply indigestion and flatalence. If this he the case, a temporal of some aromatic water, such as rimmunon or dill, may be added to the next bottle of food. The feeding apparatus must be kept perfectly clean. It is well to wash out the bottle directly after it has been used, with soda and water, and then to let it stand in cold water until again required. It is desirable to have two bottles and to use them alternately.

When the child is six mostles of age he may begin to take farincerus food. A tempounful of Chapman's entire wheaten flour, baked in an own, can be given once or twice a day, rubbed up, not boiled, with milk. If there is constigution, a similar quantity of fine natureal may be used in-stead of the flour. When the farincecous food is first began, a temporal of the flour rubbed up with milk can be added to the meal of milk thirkened with Mellin's food. Later, the flour can be given with milk as a sep-

prate meal.

No beef-ten or broth should be allowed until the buby is at least ton mentles of sgs. At that time he may begin to take weak beef, vost, or matter broth, and may also have the yelk of an egg lightly boiled, or besten up with milk in the bottle. The child may take light publing at the age of twolve months, but no most for several months longer.

All shanges made in the diet from the earliest period to the latest should be made muticusly, and their effect carefully observed. If the med appear to excite indigestion and flatulence, the new food must be given on the next occasion in smaller quantity, or we may wait for a week

before giving it a second time.

Scrapulous clossliness, and the purcet air attainable, are of great importance. The child should be washed over the whole body twice a day—once with soap. He should wear a famuel binder round the belly. No slope or soiled linen should be allowed to remain in the nursery, and the window of the rouns should be kept open as much as is practicable. The afact should be taken out of doers for several hours in the day; and while every cars is taken to grard his sensitive body against sudden changes of temperature, he must not be covered up by too-bravy clothes, and shut off from every treath of air for fear of his catching cold. A child ought to lie cold at night, and the furniture of his cot, although sufficiently thick to mean necessary warmth, should not be combersome so as to be a burden.

The above directions, strictly curried out, will be found to succeed in used cases where the child's digestive organs have not been irritated and weakened by uncuitable meals. Often, however, the infant only comes ender observation after attempts—more or less injudicious—have been made to rear him, and advice is sought because the measures adopted have been found to be unsuccessful. Exceptional cases are also sometimes met with, where the infant from the first is analyde to digest cow's milk. However carefully the food may be prepared, each need either excites counting, or and need great acidity and fistulence, and the general matrition of the child becomes gradually inquired.

In every case of sailk indigestion, we should inquire carefully as to the time of feeding, the quantity supplied at each meal, and the attention be-

stawed upon cleanliness in the feeding apparatus.

The imbility to digest cown milk may be a natural psynliarity of the infact, or a merely temporary inespecity arising from a disordered state of the digestive regains. In the first case, if a wet-nurse cannot be procured, or is objected to, we may give the milk of the gost or not. Either of these is usually well digested by children who find cow's milk too heavy. The addition of a third or fourth part of barley-water still further increases the deposibility of the meal, and Mellin's food may be dissolved in the mixture with advantage. Both these milks should be boiled before being used. An's milk sometimes has laxative properties which boiling will remove, By the same means the strong flavour of good's milk may be diminished, although this is often not objected to by the infant. An aromatic, such as a comple of tempoconfuls of cinnamon water, added to the milk, seems often to supply a stimulus to direction; and I have known infants who were bruriably troubled with fistulence and disconfort after a meal of plain row's mik and baries water, digost perfectly the same mixture when thus monationd. If test paper show slight acceptly of the milk, a punch of bivariousts of soils should be always midfed to the buttle.

Confequed milk is often recommended in these cases, and is usually

well digested, but the nourishment it supplies is very insufficient for a growing body. The child may get fat, but is usually lethargic and drift Although high he is not strong; and unless the milk be largely supplemented by Mellin's food, the infant will probably drift into rickets before he is seven or eight menths old. The same may be said of the other foods containing preserved milk, as Nestle's and Oetth's Suiss milk food. They are often more easily digested than unblinted cow's milk, but after the first few menths should not be relied upon to supply the whole nourishment of the halo. In all cases it is advisable to revert to fresh cos's milk as soon as this can be done with safety. There is another reason why an infinit should not be allowed to derive his whole nourishment from timed and preserved foods. It is nown recognised fact that hardfeld belies are lable to a form of scurry; and if the child be entirely deprived of fresh milk and other anti-scentistic foods, this consequence of injunicious

feeding is very likely to be brought about (see page 253).

It is in cases where contrary cow's milk is digosted with difficulty that Dr. Robert's plan of puncrentising the milk is so valuable. Puncrentised milk is prepared in the following way :- To a pint of new cow's milk is abled half a pint of boding water, two temporadus of Benger's parenatio solution, and twenty grains of terretorate of soda dissolved in a little water. The whole is stirred up in a jug, which is afterwards covered, and then placed in a warm situation under a "cosey," At the end of an hour, the contents of the jug are emptied into a sauce-pan, and the mixture is boiled for two estrates to stop further action of the pancrestine upon the milk. The food is then ready for use. It may be sweetened to the shifts taste with eagur of milk. In milk so prepared, the casein is poptonised by the action of the parameters, and the main difficulty in the digestion of the malk is removed. This method is, in my opinion, far preferable to that suggested by Prof. Frankland. In the latter method (artificial house such the cow's milk is diluted with a third part of whey, and no doubt by this means the normal proportion of casein in woman's milk may be exactly imitated; but the process does nothing to render the stiff eard more digostible, and the firm clotting of the casein is just the difficulty which it is so assential to everyouse.

A temporary inespectly for digesting milk on account of gastric derangement, is a common phenomenon in the young child, and, indeed, is the most frequent cause of failure in hand-feeding. If a clumpe be not made in a diet which swidently designers, it is not long before a calamb of the gastric muccus membrane becomes established. This denagement, when once confirmed, is not always easy to control, and, if very strangest measures are not promptly taken, may lead to the death of the child. A mild form of gastrie disturbance sufficient to prevent the digotion of milk, is not unfrequently met with, even in children at the breast It is indicated by a nour small from the mouth, a slight sallow tinge of the skin, and by the voniting of each meal directly after it has been smallowed. Sometimes the bossels are relaxed, from participation of the unadian miscous membrane in the demagement. A condition such as this may exist almost from hirth. It is a common accident in hand fed balan, and if reglected, leads, as has been and to serious and perhaps fatal comequiences.

In children at the breast, the derangement is usually quickly remedied by the administration two or three times a day of a few grains of bearbonate of sola, and half a drop of the fracture of teax remies, in a temporal of some aromatic water. In infants artificially fed, the disorder is not so easily curred, and a complete change in the diet will be required. The parcreatised malk is very useful in these cases, and in conjunction with the affaline mixture just referred to, will often quickly restore the digestive repost to a healthy condition. If this do not succeed, it will be necessary to stop all milk-food for a day or two. The youngest infants bear a temperary depointion of malk exceedingly well; and when, as in the demangement spoken of, the symptoms are the direct consequence of formestation as a white, a withdrawal of the fermentable material is followed by unusualized cases of gastric demangement. Even in the most obstimate and protracted cases of gastric demangement in young believe, the withholding of millofood, combined with proper measures to support the strength and taintain the heat of the tody, will be generally successful in restoring the infinit to health. The wave treatment is of equal service in cases of severe

arate gastric catarrb in hand-fed liables.

Some time ago I was asked to see or infant two months old, whom I fourd suffering from soute gastric cutarris, and in a state of great exhaustion. She had been brought up by hand, and was being fed upon milk and burbey water in equal proportions. This she woulded as used as it had been reallowed, bringing it up carelled and intensely acid. There was a sour smell from the breath, and although the disease had only lasted a few days, the eyes were hollow, the face looked pinched, the fontanelle was deeply depressed, and she lay motionless on the nurse's lap with her eyes hilf closed. Her hands and feet were cold to the touch and looked purple. For a day or two her howels had been much relaxed. She was taking small doses of lead and opium to check the diarrhour, but each dose was returned almost immediately. The child was ordered to be kept warm and perfectly quet. A week mustard poultice was applied for an hour to the epigastrium. The milk was stopped, and the child was fed with weak weal broth and thin hitley-water mixed together in copial proportions, and given cold at interrals with a temporar. A few drops of brandy were also given occusionally, as seemed desirable. As a result of this treatment, the vomiting stopped stone, and the child when seen three days afterwards was found to be goally improved. The breath had lost its sour small the face was no inger panched, the eyes were not hollow, the fontanelle was not depressed, and when askep the child closed her syelids. The motions were still rather eatery, although the number was natural. The medicine and diet were continued for a few days longer, and the child was soon well.

The most important part of the freatment in this case was the substitution of seal broth for milk. Directly the supply of fermentable matter was sepped, fermentation coused, soid was no longer formed, and the digestive organs returned to a healthy condition. Here the derangement was soute. In the following case the complaint was obvenie, the inability to digest

cow's milk having extended over a lengthened period.

A little girk ten months of age, very thin and weakle-looking, had been wanted at the age of eight months. Since that time she had been mable to digest milk, comiting it at once whenever it was given to bur. For teach two months, therefore, she had been feel on two descert-spoutfuls of farinteeous food made with water into a think cream, and given every two hours with a upoon. She refused to take it from a bottle. Twice a day the food was made with heaf-ten instead of with water. After a need the child often comited, but when this happened she was immediately fed again. The result of such a diet was to be experied. The child, although ten months old, could not set up. She was becoming rapidly thinner. She stopt very little, crying and whining the greater part of the night. She was

mid to show no signs of abdominal pain, but the bowds arted three times a day, and the motions were relaxed and herribly offensive. The feet were

Altos escalla teordia

Such a case, which is far from being an incremmon one, is readily treated, however severe may be the vomiting, by restricting the fliet to equal parts of weak veal broth and thin barley-water, given cold in small quantities at a time; by warnth to the belly and extremities; by perfect quiet, and by suitable remedies. The best solative is liq. arsenicalis—half a drop for the dose—given with a few gmins of bicarbonate of sola in some mountic water. It may be sweetened with spirits of chloroforms. After a few days of such treatment, the power of digosting milk usually returns. But at first it should be given sparingly, either ponercatical, or freely diluted with burley-water, and only once or twice in the day. If the malality to dignat milk continue, the case must be treated as described under the head of Chronic Diarrison (see page 640).

It may be accessary to begin the treatment by a dose of castor-oil or rhesharb and soda, to slear away undigested food from the bowels. If the child is very weak, white wine whey is very useful. This may be sacked from a feeding-bottle, or given with a syringe-feeder, and the infant, if fooble, may take it in large quantities. Alternate needs of this whey, and of weak well broth dilated with an equal properties of this barley-water, forms a very suitable diet for such cases. Median's food, disselved in this barley-water, or plain whey and harley-water, is also very useful; and a desert-spoonful of fresh cream, shaken up with a teacupful of plain or

white wine whey, is a very valuable resource in obstinute cases.

For the treatment of constipation, colic, losseness of the bowels, thrush, and the other accidents attendant upon improper feeding and general mismanagement, the reader is referred to the chapters treating of these special subjects. In conclusion, it may again be remarked that success in the artificial feeding of infants depends, in the first place, upon the selection of a suitable diet; and is the second, upon extreme watchfulness to detect the corliest signs of indigestion and acidity, and to make the necessary charges in the food which have been indicated above. Action must be prompt for delay is often field. A food must be charged directly it crosses to agas, and any symptom of indigestion must be met at cone with a suitable remedy. A demangement which in the beginning might have been arrested without difficulty soon assumes serious proportions, and if allowed to cartinue, will quickly being a weakly infant to the grave.

[&]quot;To make white wine whey: — Put a breakfast supfel of new milk in a murepas of the fire. When it comes to the hold, but a wipeglessful of mond sherry. Then fell again for one minute and strain off the curd. Sweden with white signs.

CHAPTER II.

GASTRIC CATABBIL

Canasa of the storach in early life is a demangement of common occurrence. It is not with in two forms—a febrile and a non-febrile variety. A first attack renders the gustric mucous membrane more susceptible than before, and prelimposes to a second: on this account, the disorder is frequently found to recur repeatedly in the same subject, and serious interference with the child's nutrition may be the consequence. Caturrh of the sternich, annecompassed by fever, is perhaps the commonest deringement to which children are exposed. It is a perpetual danger to hand-fed below, and forms, indeed, the chief obstacle to the successful rearing of inlants. The disorder as not with in early infuncy has been already described (see Infantile Atrophy). The present chapter treats only of caturrh as it affects obler children, after the period of infancy has possed by.

Crossition.—In childhood, the miscous membrane is especially liable to be affected by chills, but the "cold" does not always show itself in the form of sore-throat or cough. A gustric or intestinal disorder is a familiar consequence of exposure to changes of temperature, and to this cause next case of the decongenent can be attributed. A child who has sufficed from many such attacks, often acquires an extraordinary enceptibility to alternations of temperature, and the most triling chill will be sufficient to induce a return of his complaint. In such children, the more going out with cold feet into raw, damp air, is a common cause of a fresh attack. Insufficient clothing is sometimes the sole cause of the demagement. Children whose purents have a foolish objection to fluanci, often suffer greatly from continued outsides. I have known cases where complete loss of appletic and persistent wasting resulted from this deficiency, and censed at new when peoper missures were taken to protect the child's body from the cold.

Certain constitutional states predispose the child to be readily affected by child. In rackets, a susceptibility to caturrh is a marked feature of the fissue. Poinceary and gastric catarrhs are of constant occurrence in such subjects, and if the disease to present in a severe form, may lead to a rapidly latal issue. Scrofnlous children, again, are very prone to suffer from catarrhal discolors, and gastric demargament in them is very common from this cause. There is one peculiarity of gastric enterth, as it occurs in serofulous subjects, which is of importance. It is that the complaint is almost invariably accompanted with fever. In such children, the recurring attacks of prexis, lasting from a few days to a week, which are often complained of, are cause of the februle variety of scute gastric enterth.

During the second dentition, the trifling febrile disturbance which is stated by the passage of the tooth through the guns, may remier the child my susceptible to chills, and attacks of gustric estaurh at this time are

THEY CONTENDED

Besides exposure to cold, irritation of the marron membrane by ensuitable food may be a source of estaurh. In infants, so has been already described, this is the cause to which the derangeneous can be most conmently attributed. In older children, also, gastric extaurh may be produced by similar means, and may be set up by excess of rich sources, fruit, or sweets. As in the case of a chill, the susceptibility to suffer from these causes may be increased by temporary or constitutional states. During the evolution of a tooth, food which would be readily digested at another time, is often found to disagree.

Morbid districts.—A nuncous wiendrane, the sent of outarrit is injected in spots, and a layer of tough nuncus covers its surface. In the stomesh the nuncous surface is often found softened; but this condition, which, under the name of gelatinous softening, or gestro-malaria, was at one time regarded as a puthological feature of great importance, and the sums of the symptoms which had been observed during life, is now admitted to be a users post-mortess change which has no practical significance. The gradue membrane is thickened, and exhibits putches of reduces. The stomach often contains much mucus, and not unfrequently fermenting food.

Symptons Attacks of gastric estarch may or may not be accompanied by elevation of temperature. The severe acute attack, with high form, in the less common and is limited, or nearly so, to the subjects of strums. The subscute, non-februle gastric demograment is much more often met with. It is milder in character and more quickly subsides andeed, from the slightness of the symptoms by which it is accompanied, the attack may pass almost unnetword, or be spoken of as "liver" or "isiliousness."

In the coute felicile form, the child feels chilly, or even shivers, and then becomes very feverish, the temperature rising, perhaps, in the evening of the first day or two, to 104". The patient complains of no pain, but is languid and irritable. He has a sollow complexion, and looks dark under the eyes, but his general expression is placid; and unless the child is fired by exercise, there is none of the pinched, haggard aspect which is so common in cases of really serious illness. The appetite is lost and there is some thirst. The tongue is usually furred on the docum, but may be clean and red at the tip and edges. Veniting is not common, but may occur, although it is rurely distressing. If the enterth affect the intestral mucous membrane as well as that of the stomach, there is some Marrians; otherwise the bowels are confined. Purging, if present, may be seems panied by some pain in the belly, but this, us a rule is insignificant. At night the child is often restless, and is disturbed by drouns from which he way wake in great terror. During the day, if the caturch is severe, he is generally drowsy, and sits or lies about without wishing to join in the sports of his companions. While the attack lasts, nutrition is in absysmer. and the flesh and strength manifestly suffer. After a week or ten daps, the pyroxia, which had been gradually subsiding, disappears; the appe tite and spirits return, and the patient is convalencent.

Often the gustric enterth is accompanied by symptoms pointing to a similar condition of other tracts of nursus membrane. The child cay suffer slightly from enterth of the nose; the threat may be a little sers; the eyes may be weak and distressed by a strong light, or there may be slight cough. Even if the fever is high, delirium is not common, but there is consistently some frontal headacher. If the externir pass along the durchers.

to the common tale duct, a mild joundice is noticed.

In many cases, an uttack such as the above passes off, and the child does not suffer again from a similar illness. Often however, the entarth instead

of occurring in one solitary instance, returns repeatedly at short intervals. Cases of recurring gustine enturns of greater or less severity are far from anominou; and these attacks, if the internals between them are short, may eurrise a very injurious influence upon the health and general development of the patient. Children, the subjects of such entarris, become pule and this, for their nutrition is being constantly interrupted. By its influence upon appetite and digestion, the enturn checks for a time the introduction of nourshment into the system, and nutrition is hardly restored on the constion of the attack when a return of the derangement suspends it again se before. In this way the child may become an almost constant sufferer from disordered stowach, and his continued ill health and persistent wasting spate the gravest apprehensions amongst his relatives. Such cases are often emprosed to be cases of consumption; and, indeed, if there be any inherited chest weakness, long-continued interference with natrition, such as is produced by a frequent recurrence of these attacks, may go for to em-

courage the tendency to philasis.

In the non-februle variety, the symptoms are much less striking, for, pyrean being absent, the quitts are less depressed and the patient utters no complaint. Most children suffer at times from what is called "billiousness." For two or three days together they lose their appetite, mope and he about, inse a dall, pasty or sallow complexion, and look dark under the eyes. At night they sleep budly, and they are restless and irritable in the day. Those symptoms are produced by a temporary catarrh of the storach which interferes for the time with the digestion of food, but passing off, leaves no ill consequences behind. When, however, the attacks are frequent, digostion is weak, even in the intervals of comparative health, and nutrition becomes seriously impaired. Such ciralism complain often of flatalent pains ta the sides, and may be subject to attacks of syncope from pressure upwards of the distanced stomach against the heart. Their bowels are usually course. The appetite varies greatly. Sometimes it is excessively keen; at others it is poor and especious. In many cases, indeed, the child seems to have no appetite at all, and the greatest difficulty is experienced in making him swallow his food.

Those symptoms may be greatly aggressed by an unwritable dietary, If a child who suffers from the condition described be supplied with m. excen of fermentable food, such as potutoes, publings, jams, and secut cakes, he to kept in a state of chronic acid dyspopsia which is a source of constant liscondort to himself and anxiety to his friends. The whole system being fill of arid generated by fermenting food, the child is wayward and cross in braper, and successively fidgety and restless. His speech is often hesitrying and he may stammer in his talk. His muscles are stritable and twitch easily, so that he winks his eyes and distorts in negvens fashion the consent of his mouth. The so-called account habits of children often own

their origin to this derangement.

Sickness is not a common symptom in these cases, for gastric cutarrh is by no mount always accompanied by irritability of stomach. Sometimes, bowever, the child at rare intervals brings up a large quantity of sour-smellag firid and mucus. Frontal hendache, more or less severe, is excely abwith and aftentimes the pain is distressing. The rearing periodical headsoles of children are not uncommonly owing to this cause. The urine is wifeed from time to time to be thack with lithates; and, in care cases, quantalics of fine uric acid and are passed, precipitated by the free acid with which the urine is charged.

In some cases a curious condition of the tongue is noticed. On the

dorsum are seen rounded or eval patches, which appear to consist in a removal of the epithelial covering. The surface of the patches is distinctly depressed, and the colour is that of the dorsum generally. The edges are circumscribed and irregular. The number of these patches is usually three or four. They may be sented on the dorsum or on the edges of the tongue. At times, small rounded ulcers (aphthas) and red elevated papills are seen at the tip of the tongue in addition to the depressed patches on the dorsum

If apathic are not present, there is no pain or soreness

Symptoms such as the above above a high degree of digestive desargement, aggressated by an unemitable distany, and are almost invariably the consequence of repeated attacks of entarm of the stomach. Under such circumstances, nutrition is interfered with, the child wastes perceptibly, and the apprehensions of the parents are carried to a high degree. When on the other hand, the indisposition is only occasional, and the symptoms are not severe, lettle attention is excited. The child is supposed to be a follow subject, and unless the attacks become so frequent as to cause an evident diminution in bulk, or some new symptom is noticed which excites the

alarm of the friends, medical advice is considered sunrecessary.

In cases where, owing to the mildness or infrequency of the attacks of gustric derangement, general autrition has not suffered, the occurrence of fainting fits may induce the purents to apply for medical assistance. Attacks of syncope, more or loss complete, are not uncommon in these mers. Naturally enough, they give rise to great mixiety, especially if conjuned with palpitations and flatzient pains about the chest. They are then considered to be symptomatic of heart disease. Thus, a little gal, aged chrom years gird a half," hinted for the first time six years ago. She has since fainted on free different occasions. At these times she has always been noticed to be dull and langual, with a poor appetite but otherwise has seemed to be well. Is subject to starp pains in the left hypochondrism, under the influence of which her face will become glastly white. She skeeps bully, talking and mosning, and often hes awake at night. Has never suffered from norms; boucle are comined. Has sometimes a sales complexion." This young lady, who was a well-grown, well-nounsked gall, with perfectly sound segain, soon lost all her symptoms under suitable trentment.

In some cases, the non-febrile form of the complaint is accompanied by more sensors symptoms. There may be severe pain in the epigastrimi, wident bradache, and distressing retching and comiting, first of fool and afterwards of bilious or watery fluid. Such attacks are usually soon over. They are commonly produced by the introduction of some invitant into the storaich, and coase soon after the complete ejection of the offending malters from the body. For some days afterwards the child is largered his digestion weak and comiting is easily excited.

In children of eight or mise years of ago or upwords the drop-pointed duced by repeated attacks of gastric enterth may give rise to more or less sewere pain after food, a tendency to wonit, pyroois, and other symptoms such as accompany the derangement in the adult. These symptoms are soldon mot with steept in children who are indimally over-fed, or are indalged with rich smoos and highly-speed and stimulating food. They usually quickly subside under a change of diet.

Disposant.—The februle form of scute greatric estarch often presents seems difficulty in the diagnosis, for the emploises are frequently indefeate, and the case may be mistaken for our of far more serious disease. Such cases have been confounded with cases of scute tuberculosis and they also prosent a strong likeness to the mild form of enteric from. The princital points upon which the diagnosis is founded will be best illustrated by the parration of the following case seen in consultation with De. G niber.

A ratio girl, aged seven years, of a strumous disposition, had been delirate and subject to occasional failure of appetite for some months. For short a week she had been forensh, the bodily temperature rising sometimes as high as 104° Fahr. Her appetite had been completely lost, but the had not suffered from sickness. The bowels, at first singgish, had been somewhat relaxed for two days, the motions passed being moderate in quanfity, but loose, rather offensive, and laught yellow in colour. She had neracionally complained of abdominal pains. During the whole time of her three the child had smaffed slightly, and at first her threat had been a little sore, but there had been no cough. She had complained sometimes of frontal headache, but had not been delimous.

At my visit I found the child lying in bed with her face turned away from the window, as the light, she said, hurt her eyes. There was no salbecause of complexion. Her expression was placed, and not at all auxious or ilutresed. The tongue was a little furred on the domain, and rather red at the tip and edges. She was thirsty, but had no desire for food. The ablemon was soft, without tenderness or distention. The spleen was very imbeliately felt; it seemed to be slightly enlarged. There was no rash of any kind on the body, nor any ordens of the legs. The urine was not albecause. The heart sounds were healthy. There was no chonclus, nor say other abnormal sign about the hungs. Respiration regular, 24; pulse regular, 168; temperature, 101 (at 4 n.m.).

This case, which was seen on the seventh or eighth day of the filmers, when the ordinary emptive fevers could be excluded, might have been scale baberenloses, typhoid fever, or acute gastric catarris. The occursince of fever, with a history of previous delicary of health, was quite in keeping with the ordinary course of tuberculosis. There was, however, no lonely history of any such complaint, and this important fact, together with the complete absence of distress or anxiety in the expression of the child, and the absence also of any osferns of the extremities, was held sufficient

evidence to exclude the presence of this formidable discret.

Between typical fever and acute gastric cataerh the distinction was more difficult. The temperature, it is true, although always elevated, had solf-showed the course of the temperature in a typical case of enterio lowe; but in children this fever is often mild, and frequently deviates from the ordinary type. Again, the absence of cruption did not exclude typhoid I feet, for the eighth day is early for the rash to appear, and in chaldren tygoal spots are sometimes absent altogether in unsloubted cases of the disthe On the other hand, the state of the spleen was doubtful. Some slight enlargement was suspected; if this was so, the fact pointed distinctly to typhoid fever.

Is favour of acute guetric cutarrh was the slight souffling, the mild sore throat, the complete absence of delicium or of apparent discomfort, and the irregularity of the fever. Altogether, the symptoms pointed, perhaps, tacte decidedly to gustrie cutarch than to the more serious disease, but it was impossible to exclude typical fever; therefore, a general opinion was espersoed as to the enture of the case. The temperature fell on the followbig (eighth or south) day. This early termination seemed to decide the question in favour of catarris, for it is only in very exceptional cases that

liphed force subsides before the fourteenth day.

When gastric entarch, instead of occurring in one solitary attack, as in the above instance, recurs repeatedly at short intervals, the diagnosis is more easy. This recurrent form is well illustrated by the following one

which was sent to me by Dr. Lister, of Croydon.

A little girl, aged seven years, pulled in appearance and ill-grown, had been wasting slowly for eighteen mently. During the whole of this time she had suffered every two or three weeks from attacks of feveridates. In these illnesses the symptoms were the same. The temperature ross to littand 101". The child looked sallow in the face, and was very irritable and languid. She was thirsty, but refused her food. Sometimes she vomited. but in the earlier attacks the bowels were never relaxed. She got thinger and weaker, and leoked ill. A few months previously she had had a server attack at Lowestoff, in which she had been slightly jaundiced. Six weeks before her sing to me size had had a still more violent attack, which had left her completely jumdiced. This lad been followed for the first time in her experience by diarrhorn; and for a fortnight the motions were green and sliney, and sometimes contained riets of blood. They were passed with straining and some pain. At the time of her visit, the looseness had in a great measure subsided, but the child still had a faint yellow tint of the skin. Her heart and lungs were leadily, and there was no sign of eplargement of the bronchial glands. Between the attacks of illness the child was said, as a rule, to be fairly well. On the subsidence of the fever her appetite would return, and she would began to regain fiesh. Unfortunately, before her strength could be said to be thoroughly restored, it would be again reduced by a new access of fever.

Jaundice in children after the period of infancy, is, in the large negority of cases, exterrial. In this child, its occurrence with the two last situace of fever helped greatly to explain the nature of these attacks, and the case of the ill-health from which the shall was suffering. Moreover, in the most recent illness, a new feature had been noticed in the distribution which had followed the jamilies and still further delayed convolucemen. In this distribute, the classacters of the stools, which contained nature and blood, and were passed with straining and pain, pointed to a catarrh of the lower bewel. Explaining, then, the curior attacks in the light affected by the latter, it was evident that the child's sensitiveness to change of temperature showed itself in the form of repeated attacks of nexts gratic catarrh, secongained by fever. This fact being once established, the treatment of the case was conducted upon the principles to be described, and the child

had no return of her feverish symptoms.

The non-februle form of the discuss may be recognised without difficulty. Prequently recursing attacks of indigestion, a tendency to scality and flatience, reallessness and irritability after indulgence in sweets and other forms of fermentable food, are almost invariably the consequence of gastric catarrh. The complaint is no common a one that it should be always expected in children who are habitually pule, thin, and nervous, with a salice complexion, and who are subject periodically to fits of irritability and themper. Continued has of appetite from this cause often master apprehensions that the child is becoming consumptive. The real cause of his wasting may, however, he detected by nothing that the chest, on constitution, shows no sign of disease; that his expression, although occasionally wearied, as after exertion or before going to bed, is not habitually districted and that the exercise benefits a normal. On inquiry, too, it will be found that the wasting is not a constant feature, but that the child is better and worse, sometimes appearing to be almost well and to pain desk;

at others, being languid, moping, and sallow-looking when indigestion is excited by a fresh attack of exterrb.

Frozinget.—Whether the gustric enturn's assumes the februle or the nonfabrile form, its treatment is the same. Our object is, firstly, to put a stop to the existing dorungement, and, secondly, to adopt such measures as will

present its recurrence.

To care the existing entarrh, we must do our best to remove all sources of imitation which may be keeping up the disorder. The acrid mucus, a free secretion of which is one of the ordinary phenomena of the esturbal ente, is a constant source of formentation and neidity. It very spickle indays an seid change in the more fermentable articles of food. Therefore, if the stomach be oppressed by sour matters, shown by unreminess at the epigodrium, a sour smell from the broath, and a feeling of nausea, immediate benefit will be derived from an emetic dose of specicularly wine. Afterwards, a draught composed of fineture of wax winica ("Ij-ii)), with byurbouste of soda (gr. iv.-vi.), in water exceptened with spirits of chluroform, taken two or three times a day, will seen restore the gastric mucous membrane to a healthy condition. Strong purgatives are to be avoided, but as there is usually constitution in these cases, an occasional mild aperient will be required, such as compound hyperics powder or custor-oil. If there be fewer which does not subside after the action of the emetic, the shill may be allowed to take fluids from time to time in moderate quantities. The last are unsweatened harley-water, flavoured, if desired, with sampe-dower-water, and fresh where

During the treatment as long as any signs of artisty of the stomach penist, care should be taken to exclude from the dist all matters expable of favouring the tendency to formentation of food; and even for some time afterwards, readily formentable substances, such as attrehes and sweets, should be taken sparingly, lest the derangement be encouraged to return At first nothing should be allowed but freshly-made broths, with dry tonst, and when milk is once more permitted, it must be guarded with a fourth part of time-water, or with succlarated solution of line, in the proportion of twenty-drops to the tescapful. While the decangement continues, no fruit, cake, sweets, light-publings, or potatoes should be permitted. When the appetite begins to return, a little fiels, chicken, or mutton may be allowed, but the child must not be pressed to out; indeed, until his dipostive power be completely restored, the utmost care must be taken not to

overload the shouseh with food.

The above measures will effect a considerable improvement in the condition of the clabt, but at this point the treatment may be said only to have began. The patient is in a weakly state from successive attacks of gastric valurit. We have therefore to adopt measures to strengthen the digestive power, and take such presentions as will insure him against a relapse.

To give tone to the stomach and strengthen digestive power, preparations of iron are required. It is a common practice in such cases to administer the preparation of the phosphates of iron and lime known as "Parmb's chemical food." This syrap is a very favourite remody with mothers, who, avoid, perhaps, by the mane, give it largely, and with the worst results. Theoretically, no doubt, it is an active tonic, but practically it is highly pernetions. The reason is that the syrap in which the phosphates are discoved supplies material for fermentation, and each dose is soon followed by actiity and distalence, so that the medicine really aggreeates the mischief it is attended to allay. The better plan is to give the dislyand iron, or, if there to any tendency to unfilty remaining, the summonio citrate, with a few grains of hierrhounts of soin, sweetened with spirits of chloroform. After a time a risinge may be made to the solution of strychnia, with the perchloride or permittate of iron, given directly after food. All this time, the quantity of fermentable material taken at meals such be restricted, as already recommended. During the same time, a mild aperious should be given every few days, whether it seems to be required or not in insure proper relief to the bowels, and prevent the retention of any excess of miscous secretion.

In spite of this treatment, however, the child will not be secure against relapses unless special precautions are taken to gunrd the body against chills. The enturnhal state, whatever be the organ affected, tends constantly to repeat itself under the indusace of slight causes, and there is little doubt that it induces an entreme sensitiveness to changes of temperature. Children who suffer from attacks of cutarris of the storach and bowcla, should wear a broad flannel bandage applied tightly to the abdomen, so as to reach from the hips upwards to the arm-pote; and the medical practitioner should look upon it as his first duty in these cases to see that it is properly applied. The binder should be considered as part of the child's ordinary draws, and he cast off at night with the post of his elothes. In many cases it is necessary, in addition to the above precutions, to fortify the resisting power of the shild by cold bathing. Some custion, however, is often required in recommending this step to parents. Mothers are apt to take fright at the very mention of cold water; and it is true that, in the case of weakly children, reaction is difficult to establish, so that a cold both given in the ordinary way would not be attended with benefit. If, however, the both is given according to the method advocated on a previous page (see page 17), and the skin be first stimulated by vigorous friction so as to enable the body to resist the shock of the cold douchs and the shock itself be lessened by making the child sit in a few inches of hot water, the bath will have a highly invigorating effect and he followed by immediate reaction. The continued use of this both, besides having a remarkably tonic effect upon the system generally, confers great resisting power against changes of temperature, and considerably reduces the child's susceptibility to chills,

By means such as have been indicated, the most obstimate gustric estarth may be treated with success. But it must be borne in mind that success depends upon equal attention to all the points that have been insisted upon. A famuel tender will be of little value if the tendency to fermentstion is encouraged by the immedicate use of starches and sweets; and ever eold deaching may not be sufficient to neutralise the all-effects of rapid charges of temperature acting upon a body susperfectly protected from the eold. In all cases, it is advisable to recoil the use of syrups in making medicines pointable to children. The pharmacoperis syrups are not will berne by young subjects, and often do more haven than good. It is for better to sweeten the child's physic with giverrine, or a few drops of sprits

of chloroform.

In cases where habitual pain after food is complained of, the treatment found useful in similar cases in the adult should be resorted to. The dist should be arranged on the principles already indicated. Both smoot and highly-spiced or fermentable food should be forbidden, and the child should take bismuth and soda, or small doses of dilute hydrocyanic and with an alkali.

CHAPTER III.

CONSTIPATION.

Canzax of all ages are subject to constipation. Usually, it is a temporary derangement, which quirkly subsides under suitable treatment. In other case it amounts to a positive infirmity, and is exceedingly obstitude and difficult of cure. The term constipation is a relative one. In itself, it implies injury to the health from retention in the alimentary canal of matters which ought to be discharged. The condition is therefore compatible with a daily exacuation if the relief afforded to the system is incomplete. In infinite who require the bowels to be emptied several times in the day, a single stool in the twenty-four hours is a sign of continuous which should not be negligible.

All forms of mechanical obstruction to the passage of the intestinal contents give rise to accessed or imperfect evacuation as a prominent symptom. This variety of constinuation is not here referred to. The form under consileration in this chapter is due to deficiency of expulsive action, and not to nerrowing of the channel, or other kind of mechanical hindrance.

Counties —One of the commonest causes of constipation is an research distary. This is especially the case in infants. A child beought up by hard, and field with excess of furinaceous food, is often troubled with an abstinate form of continues which is a source of continual discomfort. The frequent passage along the bowels of undigested starchy matter keeps the narrous membrane in a state of constant hyper-secretion. A along narrous is thrown out which coats the lumps of undigested food so that the muscular coat of the bowel in its contractions can have little hold upon their slippery surface, and they are forced forwards with difficulty.

Still, all cases of constitution occurring in hand-fol babies cannot be attributed to this cause. Often, the most careful constitution of the stocks can detect to excess of nature. On the contrary, the motions are hard and impy, and sum to be drier than natural. This very dryness of the evacuations appears in many cases to constitute a cause of infrequent relief to the bowds. We know from cases of dishetes in the abilit, where the excessive drain of mater from the kidneys dimension intestinal secretion, how commonly constipution results from this want of moisture. In the young dall, a similar deficiency of secretion, however induced may come dryness of the faced contexts and diminish the facility of their passage. Special articles of diet have a constiputing effect upon certain children. In some, sice interferes with the regular action of the bowels. In others, eggs may induce a like sluggishness. These known troublesome continues as long as the yells of an egg was allowed every day, and disappear at once when the number of eggs was reduced to two in the week.

Atony of the bowel, or actual deficiency of expulsive power, is a not uncommon cause of constipation even in young subjects. In bully-nourished children, the amountar cost of the intestine must share in the general malnutrition; and us in this condition, the lower part of the colon and peetern are upt to be over-distended by accumulation of undigested food, the difficulty of carrying forwards the head masses is increased. In some cases, the difficulty is added to by a pseuliarity of infancy upon which Dr. Jacobi has had much stress as a cause of constitution in very early life. In the newborn infant, the length of the large gut is proportionately greater by about one-third them it is in the adult. This excess of length is due, not to the ascending and transverse colon, which are rather shorter at this age than they become in after yours, but to the descending colon and signed facuare. Consequently, the flexure is thrown into many curves, and is often bent upon shelf so repeatedly as seriously to retard the passage of six contents.

Suggestions of peristaltic action, if not-complete alony of the howel, many be a sequence of certain diseases. After chronic diserbon, a state of constitution comments prevails which is very difficult of cure. Typical fewer often leaves a similar condition behind it, and after an attack of acute rhematism the same mactivity of the bowels is often noticed. Again, alceration of the intestinal museus membrane, when not accompanied by entarry, almost invariably induces deficient focul exerction, and sometimes in these cases, convenentatial matters may be long retained. In typhoid lever constitution of a week or longer in frequently not with, and indeed, in many cases, no effort at expulsion appears to be made until the borrels are excited to contract by a copious enema. In these cases, no doubt, the normal peristolltic action of the boxels at the sent of ulceration is pandysed by the influentatory process there existing; but a similar sluggishness of the intestinal muccon membrane may be induced by disease in a distant part of the body. Thus, disease of the basis or its investorance is usually accounpanied by constitution as a prominent symptom, and in mother part of this volume reusens are given for supposing that Bright's disease in the young child may produce the same result.

There is one cause of constitution in infants which must not be forgotten. This is the singuishness of the bowels which is induced by spirin. Hand-fed bubies are upt to be very persish and troublesome at right, and an unscrupulous nurse will often drug the child with "scotling syrup" or other opiate in order that her own sleep may be undisturbed. This practice induces a very obstinate form of constitution, and unless detected, any be a cause of much perplexity to the medical attendant. It is therefore

important in obstinute cases to examine the child's pupils.

The causes which have been referred to may influence the state of the beveals at all periods of childhood, but there are other causes which largely prevail after the period of infancy has passed. Habitual neglect of the calls of nature is as common a cause of constigution in young people as # is in their ciders. The lower bowel, when it finds its warnings neglected, seen becomes accustomed to the pressure of its facal contents, and requires something more than the ordinary stimulus to excite its action. Whether from necessity or convenience, school-children of both sexes often suppress the estural desire for relief; but if the favourable moment is allowed to pass, efforts made at another time are often ineffectual, and a babit of sonstipation is thus acquired which may be very difficult to overcome during infancy, constitution may be made woose by this means. Children of ten or twelve months old, who have been subjected to much pain from distention of the sphineter by hard freed masses, will often resist, as long as possible, the desire to empty the bowel, in order to spare themselves unnecessary suffering. In such cases, if measures are not taken to enforce due ergenation, serious accumulation may ensue.

Want of exercise is another cause which is often found to prevail amongst young girls, especially if they are much confined to the house and present too quickly forward in their studies, and very obstinate constitution

may result from their sedentary life.

Symptoms.—In signacy, deficient exerction from the borrels is usually indicated by a posty, dull complexion, fretfulness, and spilation, especially at night. The child's sleep is not the sound unbroken sleep of health. He aften starts and twitches, and is roused up by the least notes. Platalence is an early consequence. The child seems to suffer from occasional twinges of pain, for he often cries suddenly without evident cause, and draws up his lower limbs measuly. His upper lip looks purple: the nuncles of his mouth twitch, and if the pain is severe, his whole complexion may become glassily white. If the constipation is obstinate, the stocks are voided with great difficulty; and in cases where several days pass authors any relief, defection is only effected with much straining and pain. The infant often makes vident efforts to unload his bowel of its accumulated burden, and will strain until his face is purple, his bowel of its accumulated burden, and will strain until his face is purple, his bowel of its accumulated burden, and will strain until his face is purple, his bowel of its accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple, his bowel or in accumulated burden, and will strain until his face is purple.

The bally is generally swellen from flatulence, and sometimes the gas accomplates in such quantity as to cause a fit of violent solis, in which the child gives signs of extreme suffering screaming and writhing and drawing up his legs. Actual convolutes may be induced by this cause. In case where stritation of the boxeds is excited by the retention of extremential matters the temperature may become elevated for a time, but it subsides at once when the accumulation has been removed. In usuay children, the torpor of the bowel is accompanied by languid circulation, so that the hands and feet are habitually cold. If the state of constipution continue, the general health assully suffers; the flesh gats flabby, and the child is pleased and feetful, with a tembercy to renat. Palparion of the abdomen will oben discourt land masses in the descending colon. These are well-defined langua, are painless, and can be indented by firm pressure with the finger.

In effect children, we see little more than dulness of complexion, a furred tangue, and some want of sprightliness and activity. The child may complain of discomfort after food and of occasional bandaches. His breath is often unpleasant, and there may be aphthic on the tangue and lips, or red patches on the tangue from which the epithelium appears to have been thrown off. Sometimes the bowels act only at rare intervals, and if proper tenserous are not resorted to, may remain confined for a week together, or true longer. Such children are subject to sisk-headaches, and have hald-

eally a pasty-looking, unhealthy tint of skin.

If the constitution preced to actual impaction of fixed masses in the bowel, more striking symptoms are noticed. The impaction ansally takes place in the rectum itself, and consists of a quantity of hard image which it is very difficult to break down and bring away. The presence of the lard masses causes irritation, which shows itself by more or less pair in the lover part of the helly, by tenesums, and often by difficulty of metarities. The child is generally sallow listless, and weakly-looking. The appetite may be smallered, but is usually poor. The tonges is often quite clean, although the breath is factlid. The helly is distended and sometimes tender. Distrikes may be a consequence of the intestinal irritation. The motions are scanty and thin; they usually contain a few small scylain, and are passed with much pain and tenessors. Instead of loose, they may be very small and solid, with excess of muchs.

In some cases, in addition to irritation, positive injury may be caused by the presence of the focal masses. Dr. T. Chambers has reported the case of a girl, aged eleven years, who had suffered for three months from a persistent distribute which was the consequence of a most accumulation of faces in the rectum. The mass by its pressure had coused absorption of the triangular cushion which constitutes the perimeum, and had reduced the

recto-vaginal septant to a nurre memberne. These cases, if not judiciously treated, may actually prove fatal. Dr. Bristone has referred to the case of a little girl eight years old, who had long suffered from a tendency to constipation, and had occasionally gone for three weeks without relief to the bowels. When she came under observation she had had no passage for seven weeks. The child was pale and thin, with a strumous look. Her bells was large and tease, although painless, her tongue clean and her appetite your. She grew weaker, and looked haggard and anxions. Her belly became more distended, and occasional relicky pains were complained of. Towards the end, her tongue because foul; size eften wonited, passed high-coloured urine in small quantity, and eventually suck from exhaustion. The counting was never stereoraccous. After death, the intestines were found greatly distended and their coats hypertrophical They were full of olive-green, semi-solid faces, which were of thicker conassence in the rectum than elsewhere; and immediately above the muswas a hard conical play of feeal matter which completely prevented the

escape of the contents of the bowel.

If impartion take place at a higher point in the bowel-in the exemp or at a bend of the colon-symptoms of complete occlusion may urise, and inflammation is often excited in the intestine. Over the sext of obstruction there is pain, which may extend to the whole aldonen, and by violent and paroxysmal; there is tencumus, and the bowels are obstinately confined. The child womits repeatedly, throwing up at first hile and muens, afterwards feenlest matter. Hicrorgh may be distressing. The ablemen is distended. The tongue is thickly forred, and perhaps dry sudheaven. The pulse is rapid, small, and thready; the temperature is often high, and the prostration is extreme. On examination of the belly, a hard swelling may be detected through the muscular wall, and can often be indented with the finger; or, if inflammation have accurred, there is some tension of the parieties, and an intensely tender swelling can be discovered at the sent of obstruction. Inflammation of the execute (typiditis) is the most familiar instance of this inflammatory form of the disorder. Firm impaction of the colon with faces is a variety of obstruction which, if not relieved by the adoption of suitable measures, may be us fatal to the patient as any other form of intestinal occusion, but it is eministly curable if the nature of the impediment be recognised in time.

Disposais.—In ordinary cases, the want of regularity in defection, and
the infrequent passage of hard, searly stools, is a sufficient token of the existence of constitution. But often the indications are much less precise.
In infancy, as has already been remarked, a single stool in the four-andtwenty hours constitutes a state of constitution which requires attention.
Even in other children a daily evacuation may occur and yet the relief to
the bowels be incomplete. Habitual sallowness of complexion, offended
breath, wakefulness at night and startings in sleep, are common indications of a leaded bowel, especially if the symptoms occur in a well-neurished
child who presents no other indication of ill-health; and dyspeptic symptoms
(discomfort and a feeling of heaviness after meals, occasional musica and
feared tongue) will often be found to arise from the same condition.

It is very important in cases where the examinions are very small, frequent, and untery, or loose, to remember that this condition is often a consequence of the accumulation of feeal masses in the rectam. In such cases, we may expect to find distention of the belly and tenesmus, with some pain in the lower bowel in defection; and the stools on inspection, will be found to consist of offensive, thin feesient matter containing mass such a few small, hard soybake. When these symptoms are noticed in a child of four or five years of age or upwards, it is of importance to examine the rectam; and often by this means the cause of the apparent bosonies may be discovered at once. Still, even if we obtain existence of teed accumulation, contion is often necessary. We must not at once conclude that retained fixed matter constitutes the whole of the derangement, and that when this has been removed the child will be well. Ulceration of the bowels is often accompanied by this very group of symptoms. This subject is considered observaces (see page 661).

If actual impaction of focces occur so us to offer an insuperable obstacle at any point of the intestinal canal, symptoms of occlusion of the bowst arise. The distriction between this condition and introspecution is ex-

plained in the chapter treating of the latter subject.

Transpart.—The regular action of the bowsts is at all ages so much a matter of habit that the child as soon as he can walk, or even earlier, should be trained to regularity in this important particular. Every meeting after breakfast he should be accustomed to go panetonly to steed, and nothing should be allowed to interfere with this necessary duty. By this means the bowsts become accustomed to regular relief at the same period of the day. The mother should herself see that the rule is enforced, for an institutive nurse, from ignorance or carelessaess, is very apt to neglect it.

In infants, constitution may be combated by careful regimen, by the shoption of special articles of diet, by enemata, and by drags. In the first plus, the dictary should be sevised and excess of starchy matter excluded. If the shill is eight or ten mouths old, the first meal in the day may consoit of a tempocularly fine natureal rabbed up carefully with cold milk into a thin, smooth paste, and then stirred brisidy while hot milk is added. Mellin's "Food for Infants," probably on account of the glucose it contains, often has an admirable effect in regulating the boxeds of infants who are inclined to-costiveness, and is a very useful resource. If the constitution is only temporary and occasional, a small lump of mount dissolved in a desert-spronful of warm water, strained and added to the bottle of food, has a ready appropent effect; or fifteen to twenty drops of the liquid extract of rhanness frangula will be equally successful. In cases where the constipution is liabitual. I have found a combination of the indusions of sentra and rention a remedy of unfailing usefulness. I usually combine these with the finctures of belladomn and max visusin, as in the following draught. The quartily resisted is smitable to a child between eight and twelve mouths of age, and can be given at first three times in the slay immediately before a meal :-

R. Tine	meis somien	68.
	t. bellistonue 1	
	d segment and a server contract of	
hufu	eum gentiame comp	

M. Ft. hyastus.

The value of this remody consists in the fact that the patient does not become dependent upon the medicine. On the contrary, it has a strengthening effect upon the costs of the bowel so that after a time it can be given twice in the day, then only once, and eventually be discontinued altogether.

The extract of mail, on account of its glucose, is also useful in relieving the constitution of infants; but must be given in sufficient quantity, i.e. a tempoonful two or three times a day. It is, however, very inferior to the seems mixture, and has the disadvantage that in tearm weather it is apt to turn acid on the stomach and cause naisen. In all cases of habitual constipation in infants, the belly should be rubbed firmly with the land twice a day after the bath, so as to stimulate the peristaltic movement of the boxels. In obstitute cases, Dr. Merriman plyness the friction to be made with a liximent composed of half an owner of the tineture of alors to one cancer of the compound soap liniment. Professor Stepherson, in an interesting paper, has proposed the use of pepsin, in cases of habitual constipation, for children of all ages. To a child of twelve months old, three grains of the dry powder, or five drops of pepsin wine may be given three times a day. The remedy must be taken for several weeks, and can then be gradually discontinned. If necessary, an occasional dose of castor-oil can be given during the first few days of taking the pepsis, but this is selfons required to be repeated more than twice.

The above methods of treatment are greatly to be preferred in cases of habitual constipation to the mechanical relief of the bowels obtained by means of executa, or even by the use of suppositories. Suppositories of Castile scap, excas butter, or brown griatine have been strongly advocated by some writers. They are no doubt useful in producing an immediate effect, but have no further influence, and cannot promote healthy and regular nction in the future. Enemata are of service in unloading the bowels where there is accumulation of freed matter, especially where irritation and colic have been excited by its retention. They should be composed of this grad or soap and water, should be used warm, and if the construction be obstinate or the pain severe, may contain the addition of a specuful of caster oil. Care should be taken to use a sufficient quantity of fluid. An enems to be effectual in such a case should consist of at least two-thirds of a pint for a child of six months obl. If exemuta are given daily to relieve liabilitial constipation, the quantity mood not be so considerable. Four or free ounces will usually be sufficient, and plain water of the temperature of 60° Falo. may be employed. This doily repetition of enemnts is not, however, a plus of treatment to be recommended.

In the case of severe colic in a linby, flarmels urring out of hot water should be applied to the belly, and a copious injection of warm soar and unter, with or without the addition of a tempoorful of castor-oil, should be administered without delay. If the infant seem depressed as a consumer of the pair, he may be given a few drops of pale broady in a traspoorful of water, or may take there or four drops of sal volatile in a little around to water every few hours. If there he twitching, or my sign of convolutions the child should be placed at once in a warm both. If he suffer much from flatulence, a chabarb and so in powder may be administered, and afterwards a tempoonful of the following mixture every three or four hours.—

R.	Tiget, rhei	SIL.
-	Spirit chloroformi.	
	Spirit amnon aromat	I mir.
	follycensis	2.13
55	Aquam mrui	58.
M	Ft. mistura.	200

This may be given to a child of six months old.

In children, after the age of infancy, constipation must be treated by streated to dect, and by the sufercement of regular habits. The dist should be carefully selected with regard to its dispossibility, avoiding excess of farinecous and succharine articles. Well-small control porrolgs a serviceable at breakfast, and broiled becomet this meal is not only directible but useful. With his direct the child may take a sufficiency of fresh regardables and fruits, especially baked apples. All stadden should be cartioned against resisting the desire to supply the bowst, and should be taught regularity in this respect, as has been already recommended.

As an occasional openent, the compound liquories pounder (a temporaful mixed with a small quantity of water or milk at bedtime) is very useful and much more to be recommended than the syrup of senns and other mechanian laxuatives, which tend to promote anidity and flatulence. If the constinution is Inbitual, it must be treated after the mouner followed in the case of an adult patient. The scans mixture recommended above for lation is useful given in suitable doses. If the child can take a pill, Sir. ladrew Clark's prescription of small doses of podophellin and extract of belladowns (one-sixth of a grain of each taken at bedtime) will examily, after a short time, produce a regular daily movement; or two grains of the exsicuted sulphate of iron, with three grains of the alon and myrris pill, taken every night or on alternate nights, will effect the same object. In cases where the scanty stools counist of hard, dry hungs, a nightly down of Honyadi Janos water (one to two-canese) will quickly produce a complete change in the character of the evacuations, and promote a daily action of the bowels. In all these cases, regular exercise is of the utmost importance.

If impaction of faces in the borrel be complete, the treatment will vary according as to whether influentation have or have not been excited in the intestine. If inflammation have occurred, the case must be treated as described in the chapter on typhlitis. If there be no inflammation, but the bosels are merely blocked by the accumulated erybole, it is neally in the signoid flature or rectum that the collection of feeal matters has taken place. In such cases, the persevering use of purgative enemata will eventually reliese the patient. The difficulty commonly is that the solid play often prevents the passage upwards of the fluid, so that this returns about by the side of the take and escapes. If the impacted mass is within reach of the farree, it may estably be broken up by the use of a metallic sound. In a private house, a marrow-spoon, or even the handle of an ordinary spon of mitable size, may be used for the purpose. In giving the injection, the tube of the enems syringe should be wrapped round with lint at its base, and this, after introduction, should be firmly pressed against the time so as to resist the escape of the final. A large quantity of thin warm good, with an ounce of easter-oil and half an ounce of turpentine, must be injected very slowly, and the patient should be instructed to retain it as long as possible. In some cases, especially if the impacting mass is out of reach from the anns, the solid plug may resist repeated enemats. In a case recorded by Mr. Gay-a boy of seven years old who had suffered from complete stoppage of the bowels for three months-the constitution was eventually overcome by introducing a speculum into the rectum, so as to filets the sphereter, and then directing a stream of water against the obstacie. By this means, after the stream and played for half an hour or more against the mass, the latter became disintegrated, and a quantity of lard matter like cindors was brought away, to the great relief of the patient.

After the removal of the accumulated faces, it is very important to keep the howels regular for the future by the means which have been described.

CHAPTER IV.

DIARRIDEA.

Durmors in early life is a subject of the utmost importance, as to it a large proportion of the deaths which occur in infinity are to be userabed. The term itself is a vague one. It expresses merely an injurious increase in the alvine dejections, without reference to cause, and is applied equally to a trifling derangement, and to a serious, or even fatal illness. It therefore embraces several varieties of intestinal disorder which are elimically distinct, although, anatomically, perhaps, they may present more differences in degree of the same pathological condition. For practical purposes it will be convenient to describe three forms of bowel complaint. Simple non-unflammatory distribus (saterities (mild intestinal cutarris); acute inflammatory distribus (saterite alumbatical cutarris) of citarris, or entero-colities, and choleraic distribus (infantile cholera). Of these, the first only will be treated of in the present chapter.

In simple accomplishmentary discretion, the nurseus membrans of the boxels is in a state of temporary irritation, resulting from a mild form of catarria. The disorder is a mere derangement of function, is, as a rule, accompanied by no great violence of purging, and is quickly arrested by suitable treatuent. By many writers, this form of distribute is not separated from the more severe variety of muco-enteritis, which will be described afterwards. Its clinical characters are, however, so different, and its symptoms so much less serious, that it is convenient to devote a special chapter to its con-

sideration.

Constant.-Improper feeding is one of the most frequent causes of looseness of the howels. Amongst hand-fed habies, the disorder is especially common, and unless quickly arrested, is very upt to run on into the infamoustory form, and prove serious. The food may be excessive in quantity, or unsuitable in quality. Often it is both and an infant of a few mouths old is supplied with an amount of farinaceous feed far in excess of his powers of digestion. The food is consequently carried along the alineatary canal, foreconting and similating the mucous surface over which it passes, until it is discharged. A common cause of looseness of the bowels, is the practice, which often prevails in budly-regulated numeries, of preparing for the infant in the morning the whole day's supply of food. mixture of milk and sweetened farinaceous matter solom remains inchanged for many hours together, and often after a short time, is quite unit for the child's consumption. But besides infants, children of all ages are subject to temperary leoseness of the bowsls, from the irritation of undipoted and femouring food. In such cases the alvine flow may be regarded as the natural effort of the bowel to relieve itself of an an welcome burden. The danger is, that in infants, and weakly children, the mild

enturrial process may not cease with the expulsion of the offending sub-

states, but may pass on into the more serious form.

A cause which is little less common than the above, is chilling of the surface. Children, and especially young balois, are very sensitive to changes of temperature, and part with their heat very rapidly. Unfortunately, it is at this susceptible age that the body is habitually less covered than at any other period of life. From the time that the child relinquishes his first long clothes, until his third or fourth year, he is exposed, with insufficient protection, to frequent changes of temperature. At all acasons, while inloors, his legs and arms are bure-often his neck and shoulders as well; and not selfom from the waist-downwards he is covered by nothing but his short and smarty skirts. It is not, then, surprising that in a changeable climate the child should be subject to frequent chills, and that discribes should be so common a complaint. In England, the derangement is especially prevalent at the end of spring and the beginning of autumn-sensors when the warmth of the day is rapidly succeeded by the cool of the evening. Moreover, it must be within the experience of most medical practitioners, that the sudden alternations which sometimes occur, even in the height of summer, from excessive heat to a cool, or even chilly temperature, are generally followed by an outbreak of discribes amongst the younger nembers of the community. Bickety children, probably on account of their profuse and ready perspirations, are especially liable to these attacks.

Whilst sutting teeth, young children are more than nearly peone to losseness of the bowels. In such cases, the relaxation is popularly ascribed directly to the process of dentition, and the child is said to "cut his teeth such diarrhous." There is, however, no doubt that the teething process is concerned in the derangement only indirectly. During dentition, a child is often feverish, and pyrexis from any cause reduces the resisting power of the body, and renders it sensitive in an unusual degree to changes of temperature. In one case, the caturch fastens upon the bowels, in another upon the storatch, in a third upon the lungs, according to the varying susceptibility of the organs; and strictly speaking, the child suffers not because he is teething, but because he is feverish.

Although looseness of the bowels from the above-mentioned ranses is usually transient and triffing, it is liable at any time to become severe and seen dangerous. An intestinal catarrh, unless quickly arrested, is apt to cateral and grow violent, especially in weakly subjects; and an attack of discribes which begins mildly enough, may suddenly change its character

and novame very serious proportions.

Model dealony.—As the derangement is not in itself of much moment, few opportunities of an examination of the intestine are affected. Such lowever, occasionally occur when the derangement has been present in a young child who is feeble and alling from some more serious affection. In such cases, the nuccous membrane may appear to be quite healthy, and if here and there a certain amount of arborescent reduces in discovered, this is in all probability a post-associas change. Occasionally, an excess of sliny means may be found coating the lining membrane over a greater or less calent of surface.

Symphone.—In infants, the mild intestinal entarth which constitutes the ten-anfiammatory form of discretion usually occurs auddenly. Sometimes it is preceded for some hours by slight griping pains, names, or even von-iting, a furred tangue, restlessness, previatures, and other signs of disconfert; and occusionally, if a very indigestible substance has been smallowed.

by some fever. In a short time, a professe discharge of thin ferulent trutter takes place from the boxel, and the pyrexis, if it had been present, subsides at once. At first, the exacuations are focal, and contain lumps of updigested food. They have often an offensive some small, and may be trothe from evident fermentation. Usually, the early from stools are succeeded by thinner, smaller untery or slimy dejections, showing an excess of mucus, and tinted of a green colour. If the estarris affect exclusively the lower part of the larger bowel, there is much mucus and perhaps streaks of blood from straining. In the first few Lours the stools are usually frequent, but afterwards they become rarer, and five or six - seldom more - are passed in the course of the twenty-four hours. They are more numerous in the day than in the night, and are excited by liquid food, especially if this be taken warm and in large quantities at a time. The belly is not avolbes or tender, and the motions after the first are usually voided without pain. If frequent, they have a policeuble effect upon the patrition of the child. He looks pale, and his flesh quickly becomes soft and flabby to the touch, although to the eye the body may not appear to be wasted. A thermometer placed in the re-turn shows no increase of temperature. The duration of the derangement varies from twenty-four hours to two or even three days. If it exceed this period, it often passes into the more serious variety described in the rest chapter.

If the diarrhess be due to a chill, other signs of catarric may usually be detected. The child snuffles from slight coryzs, or coughs from a trifing

cold on the chest.

After the age of infancy, the symptoms present little variety from those just described. The child may complain of discomfort in the belly, but preserves his spirits, often his appetite, and will not allow that he is ill. He is usually thirsty, and his tongue is furred, but his general health, and even his nutrition, seem to suffer little, if at all, from the looseness of his bowels.

In children of five or six years of age and upwards a form of loss cess
of the bowels called "biesteric distribute" is common. This derangement
consists in an exaggeration of the normal peristrible movement, which appears to be at once excited by the taking of food. In these cases, the
latter part of a small is accompanied by an uneasy sensation in the belly
which soon becomes a griping pain, and is quickly followed by an urgent
desire to execuste the bowels. Often the child has to harry away from the
table, and the motions are found to conset almost entirely of undirected
food and marms. The bowels art in the manner after each neal, and often
also in the morning before breakfast. The abdominal pain may be complainted of at other times without being followed by a stool. The torque
is slightly furred, or is clean, red, and pritable-looking. If this looseness
continue for several weeks, as it often does, it causes considerable impairment of nutrition.

Tendencet.—If an infant be taken with diarrhose, the treatment will vary according to the period at which the child comes under observation. If he is seen early, and there are signs of abdominal discomfort, especially if the motions contain lumps of andigested and and starch, it is always best to maint the discharge of the effecting matters by a temporeful of easter-ol, or a small dose of rhuburh and sola (gr. ir.—vj. of each with gr. j of powdered cinnamon). This the child will take readily if it be made into a paste with a few drops of glycerine. Afterwards an antarid our be ordered with a carminative. The following, slightly aftered and modernised from

an old presemption by Boerlance, is very useful:

B. Sepon. duri Hispanioli	gr. sv.
Croke preparation of the contract of the contr	gr. ax.
Aq menthe sotion	34
Aq. fonirul	31

Sig. A teaspoonful to be given every eight hours to a child between six and twelve months of age. To older children it can be given every six hours.

If after the action of the laxative, the stools still continue to contain lamps of undigested food, or if the belly remain hard and distended, it is well to repeat the sperious until the dejections assume a more healthy character.

Even if the diarrhous appears to be occasioned by a chill, it should be treated in the same way; for there are in such cases acrid socretions which case great irritation of the howels until they are removed. At the same time, care should be taken that the abdomen is kept warm with a flamed burder, and that the child, if nursed, is restricted to the branet. If he be ful by hard, the milk should be diluted with barley-water, or with water in which a little gelatine has been dissolved, to income fine division of the surd, and should be alkalimised by the addition of ten or fifteen drops of the sechurated solution of lime.

In the large majority of cases, an attack of simple diarrhea is quickly arrested by this means, especially if care be taken that the child is confined to the house and guarded from further chill. If, however, the looseness continue, a possible composed of rhobset (gr. iii.) and around chalk (gr. v.) should be given at night-time; and in the day, a small-quantity of looseness should be prescribed with an anincial and surming around;

B.	Sp. numon, acount	TL 53.
	That their and the control of the co	IL SXIV.
	Teact, opti.	
	Sp. eldoroformi	II 5347.
40	Aquin earth	31

Sig. One tempocuful to be given every eight hours to a child of six months coll.

Oxide of sine (gr. j.); bismuth and chalk (gr. iij.-v. of each); and the old fashioned but not the less useful chalk and catechu mixture, are all of service, especially if the shools are soid and frothy. So long, indeed, as signs of fermentation are visible, chalk with an aromatic should form part of the mixture, whatever be the combination adopted. If afterwards the evacnations become than and watery, an astringent is indicated. Such cases, lowever, ought strictly to come under the head of inflammatory discribes, and full directions for their treatment will be given in the next chapter.

If the distribus occur in the course of teething, there is often hesitation as to the course to be adopted. Some authorities have been of opinion that the purping should not in such a case be lastily arrested, lest the fever and local inflammation be thereby aggressated. There is, however, no foundation for such apprehensions. I have never seen ill effects follow from the suppression of the intestinal flow. On the contrary, if the infant be weakly and the howels induitinally irritable, the continuance of the relaxation may come such depression of the strength as to place the shald's life in immusent danger. The wisest course to follow is, first to remove irritating secretions by a mild aperient, such as the shubarb and soda powder, or castoroff, and afterwards to prescribe one of the antacid mixtures given above.

Boerhanve's aromatic scap draught is very useful in these cases.

After the age of infuncy children must be treated for the mild form of diarrhous upon precisely similar principles to those hid down above. They should be confined to the house, and restricted in acid-making articles of food, such as fruit and sweets. A dose of rhoburds and magnesia, followed by a draught, several times in the day, containing spirits of sal volatile with rhibric effect and a few drops of handarum, or chlorodyne in some accurate water, will soon restore the alimentary miscons membrane to a healthy condition.

Exenteric discrimes must not be breated with astringents. The looseness is quickly arrested by small doses of arsenic and not vonics. For a shill of six years old one drop of Fowler's solution of arsenic may be given with two drops of fincture of nux vonics, three times a day, before food. One or two drops of landamen may be added if the looseness does not

quickly yield.

CHAPTER V.

INFLAMMATORY DIABREBURA.

becomes our discrete than the preceding. The purging may be severe from the first, or may begin as a mild looseness of the bowds, which quickly becomes more violent, and is accompanied by very evident impairment of the strength and interference with the general autrition of the patient. In feelic chaltren and infants it is often rapidly field, and even robust subjects may die collapsed after a few days. In some cases it passes into a chronic stage, and if not fatal to life, may reduce the child to a state of extrems amacintion and weakness.

Canution.—The causes which have been commented as giving rise to the simple non-inflammatory form of diarrhors may also induce the more serious variety of intestinal catarris. The severity of the process excited by those agencies is probably often dependent upon constitutional tendency, or upon some special state of the system prevailing in the child at the time

of the attack.

Chilling of the surface and improper feeding are, no doubt, answerable for many of these cases. Besides these, the drinking of contaminated water, or the effusions from decaying organic matter given out by the pulvelying refuse of large cities is, no doubt, a frequent came of the prevalence of severe and often field diarrhors during the summer nouths. Not unfrequently several of these cases are found in operation at the same time. If an infant born of poor parents, and living in a builty drained and crewled house, be fed in hot weather from an ill-cleaned and som-succling bottle, it may be considered certain that are inflammatory diarrhors of a violant character will very shortly follow. In bottle-fed infants indeed, the disease is especially common, and is answerable for a large part of the metality which occurs in cities theiring the first twelve months of life.

Severe inflammatory discribes appears to be almost confined to large towns; and the montality from this cause is greatest during the months of July, Angust, and September. According to Dr. G. B. Longstaff, it is not so much heat alone, as heat combined with drought that gives its visulence to the disease; for the mortality is greatest in years with hot, dry summers, least in years when the summers are cold and wet. This observer regards the complaint as a communicable symmic affection, and attributes its origin to a locally head missing from the soil or sewer-sir. It seems indeed, intelly that in many of the more serious cases of acute inflammatory diarthan there may be a strong septic element in the illness. Certainly we often find a degree of nervous prestration quite out of proportion to the amount of purping. Indeed, a state of exhaustion may continue after the diarrhon has been arrested, and end in death, although days have passed without any excessive looseness of the bowels having been noticed.

Weakness of the child, as might be expected, favours the occurrence of

inflammatory discribes; but there are certain discuses which are commonly accompanied by entarch of the bowel. Thus is typhoid fever discribes as a frequent symptom; and is measles and scarlatina purging may form a very serious complication. Again, causes which promote congestion of the portal system, such as circlesus of the liver, and discusses of the heart and longs, which impede the passage of the blood from the right side of the boart to the left, and therefore interfere with the whole venous circulation, may also help to determine the decangement.

Model distance.—The estarts of the intestine is solden general nually it is very partial, and is limited to the large intestine and jejusous. On opening the bowel we find the liming membrane control at the influence part with a layer of thick nuceus containing detached epithelial scales. The nuceus membrane itself is realisted, and often thickened, and its solitary glands and the glands of Payer's patches are swellen so as to project show the surface. Sometimes the mescatoric glands are a little sweller.

If the inflammation have passed into a chronic stage it is dark gray or dirty red in colour, and the enlarged follicles can be seen as small, pearly projections. In some cases patches of false membrane are seen on the surface, especially in the large intestine. The nuccus membrane then has the appearance of being sprinkled over with bran. The little patches consist of exuded lymph containing spithelial scales. They vary in size and shape, and usually occupy the summits of the ridges of the nurseus membrane.

If the entarrhal process has lasted long or been very serious we often find observations. These are usually seen in the large intestine, especially towards the lower part, and in the lower part of the illium. The observation sented at the follicles and result from supportation and observation starting from the interior. They are at first circular but may extend their edges irregularly. Not marely we find intransacceptions of the bored. These usually occupy the small intestine, and several may be present at the same time. They are evidently produced immediately before death, for the invaginated portions can be readily drawn out and show no sign of congestion or smaling.

In many cases of severe intentional enturing the liver is fatty. Another frequent complication, according to Kjellberg, is pureuchymatous nephritis. This physician states that in 143 cases of fatal intestinal enturing be found hidney disease in no less than 67. It is more common in infants than in older children, and is often partial, attacking only a portion of the certical substance.

Symptoms.—The symptoms of acute influentatory distribute vary to some entent according to the age of the child. As a rule, if the purging be profess the drain upon the system causes symptoms of depression, which come on earlier and are more severe in infuncy than at a later period of childhood. Moreover, in infancy the intestinal disorder is apt to be accompanied by symptoms dependent upon parenchymatous neghritis; and this complication is not so often seen after the period of the first described as it affects infants, and afterwards as it is not with in older children.

In refeast inflammatory discribes usually begins like the milder form, with symptoms of discomfort about the belly and some loosaness of the bowels; but the purging som becomes more severe. If there be any gustric enturel, the child often vomits; and both the matter ejected from the stometh and that discharged from the bowels is said and some smelling. The stocks of first contain much ourd and well-posted food, but rapidly charge their character and become thin and watery. They are brownish or greenish

in colour, and give out a most offensive odour. Unless the lower house he affected there is little mures visible to the eye, and the stools are passed without straining or signs of pain in the belly. In number they vary from six or seven to fifteen or twenty, or even more, in the twenty-four hours. Their character is found to change from time to time, partly according to the frequency of their passage. Thus, if they follow rapidly upon our acother they usually consist of dark-coloured watery third, which deposits thick frealest matter on standing. It separated by a longer interval, they become thicker and more distinctly fracal, and may contain small bumps of curel. Often they vary in character, and are at different times light and pasts, or froths and dark, or green and very liquid. They are almost always very offender. Under the microscope Dr. Lewis Smith has detected undigested particles of casein, fibres of ment, crystalline formations, spiritelial cellssingle or arranged in clusters—mucus, and sometimes blood. According to Nathragel, of Jena, tunens, invadile to the naked eye, but perceptible under the microscope, indicates a catarrh of the smaller bowel.

The general symptoms are very severe. The infant expidity wastes, and becomes so weak that he cannot sit up. His eyes get hollow; her face is very pale; the most line encirching the corners of his mouth becomes despend into a distinct weinkle, and erythematous redness appears upon the leattocks and inner parts of the thighs from the irritation of the discharges; the skin is dry, and the amount of urms is greatly diminished. Often the tangue is quite clean and red, although less moist than in health, and there is great thirst. If there is much gastric estantia, the tangue may be forced upon the dorson, and veniting is often a distressing symptom. The pulse is rapid and feeble. The temperature varies. Sometimes it remains madhered or may even be subtrarted; in other cases it reaches to 102 or 103, rising and falling irregularly, but never dropping to the level

of brake

After a few days, the earlier in proportion to the profuseness of the drain, the child falls into a state of profound depression, with quick, feeble pulse, and rapid, drafter breathing. The eyes are hollow, the purple hile class incompletely, and the face, especially round the mouth, is livid. The leaturelle is deeply depressed. The tongue often gets dry and brown, and thresh may appear upon the cheeks and lips. Often, although the hands and bet feel cold, the internal temperature of the body is very high. A thermeneter placed in the rectum will sometimes mark 107", or even higher, although the child's general appearance is that of collapse. Thus, a little ber, aged nine mouths, had suffered from diarrhous for a week, and was sometimally sick. When seen the motions were light coloured, watery, and effensive. His temperature (in the rectum) was 105.6"; pulse, 176; respirations, 64. On the following morning the temperature was 163"; but in the evening it rose to 107.8", and the child died a few hours afterwards. Jast before death the thermometer marked 196". Another infant, ten months old, had distribute for about a fortnight, the bowels acting five, six, or seven times in the day. At this time the temperature was normal. It then be-gue to rise, and for a few days varied between 101° and 102°. Then it rose rapidly to 107.4", and the child died with all the signs of collapse. In mitter of these cases was permission obtained to make examination of the body, but no complication resuld be discovered during life to account for the slovation of temperature.

When the enture is sessed in the larger bowel, especially if it affects principally the descending colon and rectum, the symptoms are more dysenteric in character. Indeed, this form of inflammatory during its often improperly spoken of as "dysentery." The infinit usually cries before the passage of a stool from griping pains in the belly; and the executions are discharged with great effort and straining. Often the bowel prelapses, and the motions contain streaks or drops of red blood. The stools the melical consist of aliny matter from admixture with mucus, and lumps of coagulated mucus can be distinctly perceived in the freed matter. Sometimes the straining continues for a considerable time after the passage of the motion, and the prolapsed boxel protrains like a bright crimson ball from the axes. Often it can be returned only with great difficulty, and when replaced is shot out again directly by the straining. In this form the stools may be as numerous as when the small intestine is affected, the constitute as distressing, and the prestrating effect upon the system of the construct parging quite as pronounced. Indeed, if the tenesmus is argued and the protrasion of the inflamed boxel almost constant, the case is very likely to end fatally.

If the demogement be complicated with parenchymateus nephritis, the signs of general collapse, into which the infant in fatal cases almost inturisbly staks, are diversated by others pointing to the kidney. According to Kjellberg's description of such cases the tongue is day, the skin upon the abdomen is cool and dry, and its elasticity is completely lost, so that when pinched up it remains winkled, lying in loose folds: the tegs are stretched out and stiff, often orderantous; the urine is very sensity, allominous, and deposits a sediment containing epithelial and byaline casts and small round cells. The child venits occasionally, sometimes almicks out and may be convalued. In the very acute cases the infant is restless, with a very rapid pulse and hot skin. He focus his thighs on his belly, and although decays and stopid, screams at times with pain, and appears to feel

acutely the slightest touch upon his body;

In the more protracted cases the infant often falls into a corratose state, which from its resemblance to the third stage of maningitis has been called "spurious hydrocephalus." The child lies in a dressy condition, from which however, he can at first be roused. His spelids are had closed; the pupils are abagrish and may be integral; the pulse is rapid, and often intermittent; the breathing is irregular and sometimes sigling; the featurestic is deeply depressed; the featurest are pinched and sharp; and the complexion is livid or even lead-coloured. The temperature taken in the rectum is subnormal. While in this state the stock—mad, was bery, and often greenish—may continue, and be passed involuntarily; or the purphage may cense, but without being followed by any signs of insprovement. Unless except to measures of stimulation are adopted, the child continues in the same state for twelve or treaty four hours, or even several days, growing weaker and weaker, and death may be preceded by a slight contrality ensures.

Spurious hydrocephalus may be the consequence merely of singuish circulation through the brain of impoverished blood. Often, however, it appears to be ewing to the occurrence of thrombosis in the cerebral sinuses. Parrot has suggested that it may be sometimes due to memic poisoning

from deficient renal weretion.

When the disease occurs given the age of infancy, the child is usually
able to resist the exhausting effects of the diarrhon for a longer period
than is possible at the earlier age; but he rapidly loses flesh and strength,
and if the purging is severe and is accompanied by consting, the features
soon look punched, the eyes get believe, and the expression is languard and
distressed. Unless the lower bowel is affected, pain in the belly is usually

imignificant; lest if the descending colon is the seat of the demagement, there is much tenesions and griping pain, and the bowel may prolapse. The temperature in these cases is usually moderately elevated during the earlier period of the attack, but often falls to a lower level than that of health when the purging has produced much depression of strength.

The stocks are very watery and offensive, usually dark in colour, and if much milk is being taken, may contain lumps of curd. Sometimes, especially in very hot weather, they may be yellow or green from excessive secretion of hile. The arine is comporatively sounty and high-coloured. According to Nothnagel, if the small intentine is the sent of enterth, the excertion of indican is in excess. When death takes place it is usually by athenia; but spurious hydroreplatus is uncommon after the period of infancy has passed, and, according to Kjellberg, industy complication after that are is equally were.

At all ages the symptoms of prostration come on earlier and are more personneed if the child is already reduced in strength when the attack legins and therefore influentatory distribute occurring as a secondary complication in a child worn and wasted by previous illness is an exces-

swely serious decangement.

The rivous form of intestinal enterch is a very obstinate and dangerous disorder, and unless treated judiciously is almost certain to end fatally. It may succeed directly to an acute attack, or may begin insidiously. If it occur as a separal of the scate variety, the stocks gradually become forer and the more argent symptoms subside. The child, however, does not regain flesh or strength, but remains feeble and pullid. His bowels art three or four times a day, and the outcombine consist of thin, dark, offensive fluid, or of equally offensive pasty matter and muons.

The insidious beginning of the chronic disorder is very common. If detected only and treated with judgment, it is readily arrested; but if it continue unchecked, it becomes a confirmed derangement and is much more difficult of cure. Still, even in bad cases the disorder may be usually

guided to a successful issue if proper measures are adopted.

A child of eighteen months or two years of age is noticed to be looking puls, and his flesh is found to be flabby. Then he shows less than his suml pleasure at being on his legs, and if the power of walking have been only lately acquired, often refuses altogether to put his feet to the ground. These symptoms occasion great perplexity to the aftendants, for the child's appears continues good—often minimally keen—and his howels are regularly relieved. On inquiry it will be found that the motions are more nature out than minimal, often three or four in the day; that they are large, offensive, and sour-smelling, and that in appearance they resemble a mass of soft patty. If only one or two stocks occur in the day, they are often teriously copious; and the mother will declare that the quantity of fool ensured by the child, considerable as it may be, is quite insufficient to account for the enermous amount of matter passed from the bowels.

For weeks, perhaps, these symptoms go on unchanged. The wasting continues, and all power of digosting what is awallowed seems to be lost. Occasionally for two or three days together the howels are related, the stock being frothy and soon-entering, or thin and dark-coloured like dirty water; but the diarrhese soon causes and the motions again become large, self, and pasty, as they were before. The attacks of acute catarrh repeatedly return, the intervals between them grow shorter, and eventually the loss pass becomes a confirmed condition. Often, however, a considerable that may elapse before this stage is arrived at. The child for months may

remain pule and listless, with curious alternations of voracity in feeding and disgust for neurishment of every kind. He is not feverish but sweats copiously. There is no actual diarrhosa, perhaps even no increased frequency of shoot. No pain is complained of. The mother will say that she cannot think what is the matter with the child, but that he is wasting away.

When the diarrhem becomes persistent, the stools vary in character from time to time. In any case, they have an intolcrable stench; and may be dark coloured and watery; or thicker, but still fluid, like thin paste; or may consist of green matter, like chopped spirach, diffused through a dark brown liquid. If they show a shreekly deposit, naived with small black clots of blood alcoration of the bowels may be confidently predicated, even al-

though no tenderness of the abdomen can be detected.

The wasting now proceeds reptilly. The child gets hollow-eyed, wrinkled, and old-looking. His belly swells from flatulent distriction. His limbs often become adenators. He is excessively feeble, and lies quite metion-less, taking little notice of anything. His appetite may be good, even at this stage, but often it is experience or altogether lost. The water is diminished in quantity, if the purging is severe, and may contain from time to time, a little aric acid smal. Eventually, the child sinks into a state of exhaustion, and dies from asthenia, or is carried off by an attack of inflammation of the lung. All the symptoms which have been described as spurious hydrocephalms, may be noticed before death, and the dimrhom may quite case during the last few days of the illness.

These insidious cases are more common during the second year of life, than at any other period, although they may also occur later. When the complaint arises as a result of an acute attack, chronic distributes is often not with during the first year, and is especially frequent in infants who

have been weaped early and fed afterwards on manifolde food.

Despessia.—Inflammatory diarrhous, if accompanied by pyrexia, may be confounded with typhoid fever. The distinguishing points between these

two discuss are pointed out chewhere (see page 83).

The severity and danger of the attack may be detected from the first, by noticing that the temperature in the rectum is mased. In simple diarrhost, the temperature is normal after the first stock. It is a question of considerable interest to ascertain the exact seat of the estarth. The presence of jamulice would, of course, indicate that the ducdenum was involved; and tenesions, with or without prohipers and, would point to the rectum. From a series of careful and laborious investigations, carried out by Prof. Nothnagel, who submitted to microacopical examination more than one thousand specimens of entarrhal stools considerable addition has been undo to our knowledge of the distribution of the lesion in cases of intestinal cotarts. According to this authority, muous is passed in considerable quantity in other forms of caturile besides that affecting the lower bowel, and can be detected by the microscope when not visible to the mixed eye. The mixed of murus, and its more or less infimate admixture with the freed matter, furnishes important evidence; so, also, from the presonce or absence of hilestained norces and epithelium, neach information can be slerived. The sesalts of Prof. Nothnagel's researches may be thus briefly summarised:

If the catarrh affect the jojunum and them, so muchs can be seen by ordinary impection of the stools; but when a specimen is placed under the microscope between two thin plates of glass, inlets of muchs are distinctly visible. We can then affirm positively that the enturn is scated in the small intestine, and that the colon is healthy. If the unican is tinted with bile pigment, it also indicates jojunal and that cutarrh; but, in midition, 2shore that there is increased peristaltic action of the colon and the lower part of the ilium. In these cases, the stools are always liquid, for if repinel in the colon sufficiently long to acquire firmness, the bile pigment is always transformed, and the play of colours in Gmelin's test can no longer be obtained. Besides bile-stained mnews, cells of cylindrical synhelism, leucocyte-like corpuseles, and fat-globules, all tinted with bile, rin be observed. In addition, on committing the urine, the indican exsection is found to be in excess.

When the larger bowel is affected, no bile-tinted mucus globules can he perceived. The stools are of a pulpy consistence, and the mucus they certain is distinctly visible to the unassisted eight. The nearer the affeeted part of the bowel is to the execum, the more intimate is the adminhave of the noncus with the general freed mass. If pure mucus is passed in large quantity, we may conclude that the signstid flexure or the bowel below it to the part involved; and scybala embedded in mucus, point dis-

untily to the rectum.

Sparious hydrocophalus does not present much difficulty in diagnosis. The history of exhausting disease, the depressed fontanells, the low termperature, and the signs of general prostration, sufficiently mark out this

explition from the ordinary forms of cerebral discuse.

Proposis.—Inflammatory discribes is so fatal a complaint in weakly. children that it is very important to estimate the clurices of a favourable ending to the demangement. Much will depend upon the age of the child, the saritary conditions under which he is living, and the state of his pre-The disease is most dangerous in babies who have been wrated early, and fed afterwards ou excess of farianceous food, or with portions of their parents' meals. Such infants are weakly and ill-nours-hed at the time of the attack, with irritable bessels from their unsuitable diet. A servere neute entarris coming on under such conditions, rapidly reduces their remaining strength, and very commonly ends fatally. Other children, laring greater vigour, are often able to battle through a complaint which would kill a younger and weaker subject. Therefore, after the age of infixey has passed, the prognosis is more favourable than at an earlier penod; but even in these cases, if the attack is rielent and the purguag server, the danger is not alight, and the dennipotent may resist all our efforts to arrest its course.

At all ages, the case is more serious if the temperature is high than if it be only moderately elevated. Also, great frequency in the stools; vioind runiting; early collapse; musual drowness or stuper; stertorous twistling; convulsions, or other sign of cerebral complication, and any sudden marked increase in the pyrexia - all these are signs of very serious import. On the contrary, a fall in the rectal temperature is of good tuen. If the internal heat of the body be found to have become normal, We may entertain hopes of improvement, although the general symptoms

appear to have undergone no change.

In the chronic form, the prognosis is also more serious in children. trader the ago of two years. Another very important matter is the permore of the distribus. If the purging is a confirmed desangement, our chances of success are much fewer than if intervals occur, however short,

[&]quot;To ten for indican :- Add to the urine to be examined, an equal quantity of the thing hydrochlaric acid, and then with a pipette, pour down is few drops of strong colu-lins of chlorids of lines. If no indican be present, the colour of the urine so treated becomes and or stated from the action of the best on some trakeness; constituent. If talican be regulated in the urine, the colour of the field becomes dark given in bine.

in which the stools are merely soft and pasty without being related. If ulceration of the bowels has occurred, we should look forward to the termination of the illness with very serious apprehension (see Ulceration of the Bowels).

Treatment.—In all cases of severe diarrhosa in the child, especially in the infant, our first care should be to place the patient at once upon a suitable diet. This subject is of the first importance; for it is indispensable to improvement that all food he withheld which is capable of formenting and giving rise to aridity. Our object is to farnish the child with a diet which will supply nourishment to the system without leaving an undiposted residue to irritate the bowels, and so aggravate the derangement we are endeacouring to care. Milk, in particular, must be prohibited indees the patient be an infinit at the breast. If he be suckled, it will sometimes be found that restricting the child entirely to his mother's breast is followed by improvement. Often, however, even this diet will not agree, and other means will have to be adopted. A hand-fed baby must be fed with whey and cream, or whey and barley-water in equal proportions, or with weak real or chicken tea diluted with whey or burley-water. The food abould be given cold, and in small quantities at a time. If the child is workly, and in any case if he show signs of becoming exhausted, white wine where is of great service. This must be given cold in suitable quantities at reguhe intervals. Thus, a feeble infant will take a tablespoonful every hour with advantage at first. Afterwards, as the need for atimulation grows less pressing, other foods may be alternated with the white wine whey; or this may be given only two or three times in the day.

Kounies has been used largely in these cases, and constinue appears to agree. My own experience of this food, however, has not been quite satisfactory. In giving kounies to a young child, the gas should be first expelled by pouring the fluid several times from one vessel to another. The quantity allowed to be taken at each neal must be proportioned to the severity of the purging. If this be insignificant, the child may take the whole contents of his feeding-bottle. If, on the contrary, the looseness be frequent and exhausting, kounies, like other fluids, must be given sparingly, and the quantity taken on each occasion must be very carefully restricted. The addition of Mellin's food to any of the first-named fluids is useful, and

in most cases answers well.

Older children should be fed, while the temperature is high and the purging severe, with plain whey, harloy-water, and weak veal or chicken broths, given in small quantities; or if the strength is failing, with the wine whey, or brandy-and-egg mixture, and strong ment assence. When the first violence of the disease has abated, the patient may begin to take wilk, but it should be well-diluted with barley-water to insure fine division of the curd, and be alkalinised by the addition of the succharated solution of lime, fifteen or twenty drops to the tencupful. Whatever be the age of the patient, any sign of exhaustion must be combated by energetic simulation. Brandy must be given internally, and the skin must be irritated by warm mustared buths.

After regulation of the diet, the next matter is to see that the belly is kept warm. The whole shelomen should be covered with a thick layer of cotton wadding, and this must be kept in place by a broad flurned hinder. If there is any tendency to coldness of the feet, they must be warmed by a

had hottle.

Purity of the air is another point which is not to be neglected. The window should be opened—care being of course taken that the child is not expected to drought-and a free circulation of air through the room can be insured by a small lamp placed in the fire-grate. Few persons should be allowed in the sick room; and all soiled lines should be removed at

ence to another part of the house.

In all cases of sovere intestinal caterri, a careful watch should be kept arer the temperature, and any great increase in the budily heat should be at once reduced by topid buthing. In tropical climates, the treatment of inflammatory distribute by baths has been found very successful. A point of great practical importance in applying this method, is to remember the depressing effect of the illness, and to be careful that the application of cold is not carried to the point of induring prestration. The more weakly the child, the more careful should we be so to regulate our measures, as to avoid a sheek to the system which might be too severe to an aken and responsive reaction. The use of the bath at once reduces the temperature, and even in cases which eventually prove fatal, its immediate effect is often mesanging.

A little girl, aged twelve months, with twelve teeth, was seized with sovere diserbou. The stools were buff-coloured and watery, without Imaps, and were passed very frequently in the day. After about a week, the dejections became frothy, and had a dark green tint. There was much tenesmus, and the borrel sometimes prolapsed. On an average, there were about after stools in the twenty-four hours. The child was very weak, and had

as appetite, but was thirsty. She never vomited.

When first seen on the twelfth day of the purging, the tongue was red, with some far on the dorson. The skin was inclustic. The abdonen was distended, lex unless the child strained, the parietes were flected, and there was no tenderness. The eyes were hollow, the mouth haid, and the rusal line was well marked. The foutanelle was depressed. The temperature was 103.4".

The child was ordered to be fed with weal-broth and barlor-water in equal proportions, and to take as medicine, powders of bismoth and aremitte chalk. After each motion also was bathed in cold water. After six of these baths, each of which had greatly reduced the temperature, the bodily heat remained normal, the stools were reduced to three in the teraty-four hours, and the child's appearance was much improved. She looked brighter, the eyes were less hollow, and there was less lividity about the lips. The stools were green and sliney, and were evacuated with straining. Unfortunately, after a few days of this improvement, although there was no increase in the diarrhors, the child seemed to sink from exhaustion, and died on the nineteenth day of the illness.

In this and similar cases, the child was placed to cold water, and bathed for a minute or two with a sponge. When the child is very weak, it is adtimble to make use of water warmed to the temperature of 70°, and to balls him in this water for a few minutes, or until sufficient evidence of reduced temperature is obtained. Afterwards, he should be placed between Makets in his cot, with a bot bottle to his feet. A stimulant is usenly required after the bath; and may be given with advantage, also, when the

child is taken out of his cot to be placed in the water.

The above measures are all of great importance, and constitute in themselves the main treatment of the disease. The use of drugs, although often of signal service in the conduct of the case, cannot be expected to lead to my good result unless the other matters have been first attended to.

If the case is seen early, it is well to begin the medicinal treatment with a gentle laxative, such as easter-oil or rhuburb and soda. Afterwards, if the temperature is only moderately elevated, not passing above 100° in the weturn, the aperient should be followed by an astringent mixture containing episms. For a child of six months old, two grains of the extract of humstoxylon may be combined with five drops of the tineture of catecha, and
half a drop of Instinuum in a chalk maxture, and given every six hours
in the day and night. If the case resist this treatment, it usually goes on
and appears to be little influenced by astringents, however approachly they
may be varied and combined. The cases we meet with in children's hospitals, have usually been treated with a suriety of the ordinary binding resedies, but the discribin continues apparently unaffected by changes in the
physic. After seeing many of these cases, we are led to rely less upon the
pharmacopecia than upon attention to diet and the other means by which
the disorder may be controlled. Of astringent remedies I prefer the extracts of hemseloxylon (gr. ij.-v.), and rhatmay (gr. ij.-v.), or the fincture
of catechat ("ij v.-v.), to gallie acid, sulphuric acid, and lead. In my hash,
dilute sulphuric acid his appeared to be almost inest unless given in a fairly concentrated form; gallie acid is often disappointing as a care for direrhou, and lead I believe to be imadmissible for infants, as it has secured to

me to be not unfrequently a cause of convulsions.

In cases which resist the ordinary astringents, the old prescription of dilute mitric acid with opins is often of special value. For a child of six months old, two drops of the dilute seid, with half a drop of tinet, opi, may he combined with a quarter of a drop of tinct eignici, or two of finet. singilaris, and given in a tempoonful of water awastened with glycerias, three times a day. When the distribus is accompanied by a high tempershare, astringents are solden of much service until the pyrexis has subsided. In these serious cases, the temperature must first be reduced by cool or tepol bathing; and for medicine, the child may take a few drops of casterod (% 19-1), according to his age), with one or two drops of landarum, several times in the day. Another remody, from which the best results some times follow, is ipecacusnha. The value of 'specacusnha in small and nepeated doses in the bowel complaints of children, has long been known. Certainly, there are few drugs which have a more striking effect upon the tracous membrane of the intestine. The dose of ipersonaths should always he combined with an aromatic. One-tenth or one eighth of agrees may be given with a few grains of aromatic chalk powder in mucilage every three or four hours. Even in these small doses, the remedy may sometimes exerrise a depressing effect upon the system; it is well therefore, to combine with each close a few drops of chloric other or sal volatile. Another form in which the remedy may be administered in the time-honoured combination of Dorer's powder with mercury and chalk. I have known obstantle coses of inflammatory diarrhoss, which had resisted other methods of treatment, to yield quickly to small and repeated doses of this compound powder. To a child of six months old, I order a quarter of a grain of each (Dover's powder and gray powder) every three hours. Iperacumha is also useful in somewhat larger doses, so as to preduce a slight emetic action. Given in quantities of half a grain or a grain to a child of six months old twice in the day, it will often produce romating without much retching; and if the stools have been previously posty and sour-smelling, will cause a very mpil suprovement in their character. When the lower bowel is affected and there is great tenomics, ipomeusnlia is especially indicated. Insuch cases, it may be administered suspended in thin starch (gr. v. to 3 ij.) as an injection twice a day. The easter-oil and opinin mixture is also useful where the lower howel is the sout of outerrh, and has great influence in allaying the pain and tenesions. One-eighth of a grain of powdered speceration may be usefully combined with this mixture. If the atomach is very gritable, and the diarrhous is accompanied by excessive vomiting, ipocacuanhais of the nimost service. This drug, although an emetic in large doses, in bobbs doses is a sodstive; and if given very frequently in small quantities, has a very striking influence in improving the condition of the patient. In Let, fally to exhibit the value of this remedy, we should select a case in which the vomiting is frequent and the tenesuras distressing, and give one or two drops of iperseasulas wine in half a tenspoonful of water regularly erere hour. Antimony, which has a similar action to ipecacumha, is also meful in like cases. Two drops of the wine, combined with half a drop of epians, and two or three of timeture of ginger, form a very satisfactory remady given every four or als hours. In all cases where the lower howel is inflamed, an injection of tinet, opis in thin warm starch (II iij, -v, to 3 ss.) is most usoful in relieving the tensomus and checking the purging. It may be alministered every night. Dr. Tyson recommends chloral to be used in the same way, and prescribes half a draches of the chloral hydrate to inc ounces of this starch. Of this, one draches is to be used at a time. A drag which is often useful when other astringents full, is bismuth; but to be efficacious, the dose of this drug must be large. For a child of six months call it will be useless to give a smaller quantity than ten grains every four boars. I nearly combine the bosnoth with a few grains of the arcumite chalk poseder, and have often met with very good results from this remedy.

Directly a reduction in the temperature and an increase in the consistence of the abook show that the first acute violence of the disease is subsiling, astringent remedies are called for, and the case must be treated as

stready described.

If the lower bowel is nestely inflamed, and prolapses as a crimson ball. which manot be returned, or is replaced with great difficulty, the protruited gut should be first fomented with warm water; next, half an orace of this, warm starch, containing four drops of landmum and few grains of powdered incommunits, should be thrown up the rectum; lastly, a thick pealties of hoiled starch should be applied over the fundament. The mens may be repeated twice a day, but the forsentation and poulties should be repowed after each action of the bowels. If prolapsus occur liter, as a consequence of reliccation of the sphinoter and irritability of the nucous assubrane at the lower part of the rectum, the bowel should be retarned by pressure with the oded finger, and if necessary may be retained is place by a pail. Astringent and tonic remellies internally, such as persitrate of iron and aux vonice (for a child of six mouths old : liq. ferri pernitratis, II, iii. ; tinet, races vonton, II 4 ; aquam ad., 5 j. ; to be taken three times a day, and enemata of infusion of rhatany after each protrusion, will usually quickly put an end to the prolopse. Ordinary cases of proliquis and in children, the consequence of repeated cutarries of the lower bonel, without any great frequency or urgency in the dejections, may be madly cured in most cases by the application of an efficient flannel binder to the belle. The occurrence of fresh estambs being thus prevented, the related mucous memberns soon recovers the tone.

In cases where the symptoms known as "spurious hydrocephales" are seliced, or in any case where signs of prestration are visible, the child should be placed for ten minutes in a warm mustard bulk, and should be aberwards wrapped in flaunch, with hot bettles to his sides and against his feet. The brandy-and-egg mixture can then be given every hour or half later in draws of one temporaful, or if the patient be a young infant white wine whey may be used instead. In all cases of inflammatory distribute, the quantity of food to be taken at one time must be sarchally regulated

according to the strength of the child. If the purping he severe, and especially if it be accompanied by distressing resulting, liquid food should be given in quantities of one specuful every half hour. Sometimes no more than one tenspoonful can be borne at one time.

In the chrone form of inflammatory distribute, the treatment comicis, uninly in a careful regulation of the food. Milk in such a case is an entent poison which must be strictly forbidden; and starches are digusted

with difficulty, and must be very sparingly allowed.

In the insidious beginning of the discreter, when large pasty stock are being passed, the child, if an infant, should be fed with weak veriforch and barley-water in equal proportions; whey with cream; the yolk of one egg besten up with broth or whey; and Mellin's food mixed with wher or barley-water. The meals should be frequently varied during the day, and the quantity allowed must be strictly proportioned to the infant's powers of digrestion. For medicine, he may take a powder of risalarib (gr. ij. ij.) and accounts chalk (gr. ij. -v.) every night for three nights; and in the day, a mixture composed of half a drop or a drop of isodismum with four or free grains of the bicarbenate of soda in some aromatic water. If the stock still continue posty in character, although reduced in quantity, a couple of grains of popoin may be given two or three times a day in water and glycorine, before food. In such young shildren, if the decangement have not passed beyond this early stage, it is namally readily arrested by this means. The infant should be warmly clothed, with a flamed bearinger round his

In older children, if the derangement have persisted for a considerable
time, digretism and notrition are less easily restored. The same plan must
be adopted of forbidding sulk, and greatly restoreing the quantity of starchy
food. The child should take the yolk of an egg for his breakfast, with a
slice or two of thin, well-tousted breakfast and fresh batter. For dinner, the
less of an under-stone nutton-chop, with well-boiled conlittoner, and fresh
lareal crumbs. For his evening must, strong break, must-jelly, or meabsesence. It is best, in obstinate cases, to accusten the child to take undit becuits, or malbed rushs, instead of ordinary bread and toust, as the former
are much more readily digested. Sometimes the pracreatic cambion seems
to be beneficial, but spart from the disagreeable tasts of this preparation,
which readers it exceedingly unpleasant to the patient, it often causes name
and discomfort, and has to be discontinued. Pepsin (gr. iij-r.) is however,
very useful, and the extract of mult often proves a valuable aid to dispatier.
Still, maltime must be given with cartion, as, if it contain excess of glarone,

helly, and should be taken out frequently into the open air.

it may encourage looseness of the bowels.

I have found raw ment of immense service in cases where the stools continue pasty and offensive in spite of the most excellal regulation of the dist. It is prepared by mineing a piece of my rump-steak or multion-clop, pounding it finely in a mortan, and then atraining through a fine siere. Most so prepared may be exten as it is, or diffused through ment-broth or ment-jelly, or spread upon bread and butter. It may be taken in large quantities. If possible, the child should be induced to seallow from a quantit to half a pound in the course of the day. Before each meal of raw near, a dose of pepan should be administered. Children soon take a liking for this food. At first it is only partially digneted, and the decomposing residue gives a most offensive small to the stools; but after a few days expectably if pepsin be taken, the ment course to be risible in the notices. By the above measures, strictly curried out, the most obstinute cases can be arrested. The child rapidly regains flesh and strength, and after a time

his power of digosting milk and storch returns. Very careful watching, however, is required in order to carry the silness to a successful issue. The stouls must be inspected every day, and any sign of looseness, offensymmes, te hyper-secretion of smeas will require to be promptly attended to. femineness of the motions is due to the presence in them of undigested and decomposing food. This is often the consequence of abnormal briskness of peristaltic action, which forces the contents of the bowel too rapidly along; or it may be due to mere weakness of digestive power. In the first case, one drop of landsamu should be given three times a day to quiet enggerated perientic setion. In the second, the dict must be revised, especially in the matter of farinaceous food, and no starch unguarded by malt should be allyzed to be taken. Excess of muons may usually be quickly moderated by the custor-oil and opium mixture previously recommended, or by a few drops (v.-x.) of Eq. by imageri perchloridi, given every two or three hours during the day. Slight looseness of the bowels is readily arrested by nightly does of powdered rhubarh (gr. iij.-v.) and aromatic chalk-powder (gr. e - with); or the latter may be given with a drop of landamam, and ten or lifteen of tinct, estechu, three or four times in the day. The flunct binder in all these cases is as important for older children as it is for infants, and should be fitted closely to the abdrenen, as already directed.

If, when the child is first seen, the deraugement has become a confirmed districts, the above plan of treatment, as regards slict, must still be the same. The belly should be covered with cotton washing under a fluxed hinder, and the child should be strictly confined to two rooms. The purging must be controlled by homestoyden, thatany, and opine, given several times in the day in the doses recommended on a previous page; and if the notions are sour-smelling, a few grains of arcumstic chalk may be added. If the purging is obtinate, especially if electration of the bowels is suspected, nitrate of adver is a most valuable remedy. It is suitable to both relate and older children, and should be given with dilute nitric acid and tract opic in givename. For a child of six months old, one-eighth of a grain may be administered every four hours. For an older child, the quantity of the nitrate may be increased to one-fifth or one-dourth of a grain. The treatment of severe cases when nigaration of the bowel is present, in fully

examilated in mother place (see page 666).

The raw ment diet is very useful in obstituate cases, and, if the diarrhous to opious, should form the stuple of the child's nourislement. Stimulants will smally be required, and should consist of the brandy-and-egg mixture

given as often and in such quantities as may seem necessary.

When the purging has been arrested, the case must be treated as described for the early incidious form of the complaint. Afterwards, quinine and from may be given, and the child should be sent, if possible, into a braning air. A valuable tonic in these cases is the following, suitable for a shild of three years old:—

B. Pepsini porei	er ill
Liq. strychnia	n.t
Quinim	gr. 88
Aridi nitro-murintiri dil	可利
Aquim	31].

M. ft. hamstns.

To be taken before each of the three principal meals.

Col-liver oil is also a useful remedy, and should never be neglected in statinate cases.

CHAPTER VL

CHOLERAIC DIARRIDEA (INFANTILE CHOLERAL)

Canamare diarrhesa is the most dangerous form of intestinal flux to which children are liable. It occurs only during the summer mouths, runs a very rapid course, induces in a few bours a startling change in the appearsance of the patient, and often sails fatally. The affection has derived its name of choleraic diarrhom from its resemblance in many of its symptoms to Asiatic cholera; but it is not, like the latter disease, an epidemic methdy, and appears to be essentially distinct in its nature, although in many re-

specia so apparently similar.

Countries.—Cheleraic discribon is especially a complaint of warm weather, and smanner heat must be looked upon as a powerful precisposing cause of the disease. Other agencies, however, must come in as exciting escases, for the affection is not common in country places, and indeed as marely seen out of othes. Injustations feeding, but drainage, and the efflueium arising from decaying organic matter are probably auxiliary causes which have a notable influence in exciting this as well as the other forms of gastro-intestinal discoder. Infantile cholera, as its name implies, is a discuss of early childhood, and is more common during the first six months then at a later period of infancy. It is said not often to be not with after the first dentition is completed, but obler children are subject, like adults, to attacks of cholerine or summer cholera, which have all the characteristics of choleraic discribon in the infant. Boys are said to be more subject to it than girls; and robust children are attacked by the com-

plaint as often as the ming and the feeble.

Morbol Austrony -An examination of the intestinal canal in fatal cases of infuntile cholora reveals little to account for the alarming character of the symptoms by which the progress of the disease had been accompanied. A patchy reduces of the mucous surface may be visible, but often this is very alight and incomplete. Indeed, it may be absent altogether, and inatend of red, the mucous membrane may be paler and more bloodless than natural. The glands of Poyer's patches, and the solitary glands of the large intestine, often stand out from the surface like little translatent projections, and sometimes the monous membrane is softened. The softening appears to be a secondary lesion, and to occur as a consequence of the profuse serous transmission, which is one of the majo features of the illness. The same softened state of the saucous membrane is often seen in the storach. If the come of the disease is very repid, extensive destruction of the cuithelial costing has been noticed in the gastro-intestinal curai. The organs generally are assemic. The brain is especially bloodiess, and is said to give evidence of fatty degeneration and colours. The kidness are congested, and, according to Kjellberg, may be sometimes the soft of acute parenelymatous aephritis.

Symptoms.—The outbreak of the disease may be sudden or gradual

Scretimes it bursts out as a violent attack of veniting and purging, which quickly assumes alarming proportions, and the shild speedily passes into a state of collapse. In other cases it begins as an ordinary purging, but after a few days vomiting occurs, and the shocks assume the premiur waters.

appearance which is so characteristic of this fatal analydy.

However it may have begun, the disease when established has very peestar features. There is obstinate vomiting and very persistent distribut. The child first throws up the contents of his stomach, and all fluid or melicine availowed instantly returns. Next, the ejected matters consist of mucus, thin watery fluid tinged yellow, or even pure bile. The stools, which are at first feculent, thin, and offensive, soon lose almost all trace of form matter, and consist of a copious flow of scrous fluid, which scake intothe disper, and when evaporated, leaves nothing but a faint rellowish stain upon the firsm. The quantity of fluid discharged from the howels is sometimes extraordinary. When those scrous, the stools are not especially offengive, they have not the horribly fortid o lour which is noticed in many cases of influentatory diarrhon-an offour which seems to eling to the diaper. and can be with difficulty washed away. The number of the stools varies. Senetimes twelve or lifteen say passed in the twenty-four hours. In other cases the bowels art less frequently; but usually, if the stools are separated by a longer interval, a larger quantity of fluid is discharged on each occusion, so that the abstruction of water from the body is very much the March.

As a consequence of the profess drain both from the stomach and bowels, the patient's body wester and dwindles with a rapidity which is surprising. One only a few hours, the eyes grow hollow and the nose sharp, the checks full in, and all the features look pinched and drawn. If previously well neurished, the cheb's field losses all clusticity, and feels soft and deagly to the touch. The abdominal parietes are flaced and sometimes shrunken. The skin is instastic. Owing to the loss of water, the thirst is enterns. The child, if he can speak, asks constantly for drink. If an infant, he faces his eyes upon any cup or vessel containing fluid, sucks his lips, and whines in a manner which is sufficiently expressive. In most case, however, anything which may be swallowed is immediately returned.

The urine is excessively scanty, and if the discribes is prefuse, may seem to be almost suppressed. The tongue may be clean, or covered with a thin for. Towards the end of the discuse it is often dry and become. The pulse is rapid and very feeble. It often rearises 150, but is regular in rhythm. The temperature is generally high. The heat of the surface may be natural, or even sub-normal, and often the extremities feel cold to the hand but a thermometer placed in the rectum registers a high level, the mercury using to 104°, 100°, or even a point still more elevated. The child is extended presides. As long as he has strength to do so, he mores his arms and legs uneasily and winingers or cries feebly. Often he draws up the somers of his mouth as if to cry, but no sound is board. He sleeps little, but lies in a drawsy state with syrlids only pertially closed. The footanelle is deeply hollowed, and in extreme cases, owing to the shrinking of the brain from abstraction of water, the bones of the skull can be felt to over-line.

Is a very short time, unless some amendment occur, the child passes into a state of collapse. He lies perfectly quiet, as if dowing. His eyes we only half closed, his features are sharp, and his face livid and oldloshing. The remiting usually causes at this stage, but the distribute genarily continues, although with dissimished violence. The cours becomes more and more complete; the conjunction come to show my sign of sen-

sitiveness, and the child dies quietly, or in a faint convulsion,

In the comparatively rare cases which terminate favourably, the first sign of improvement usually noticed is a full in the temperature; the next a cessation of the veniting, so that fluids can be retained upon the storach. Then the stools begin to present a better appearance. The serous discharge becomes again tinged with facal matter, and the craving for druk is been noticeable. The discribes may then cause, or thin foculant stools may continue to be passed in small quantity for some days. In other cases the improvement in the stools is the earliest sign of amendment, and the veniting continues for a time, even after the purging has ceased.

The duration of the illness is terribly brief. Often it may be measured by hours. Always at the end of the fourth or fifth day, the patient is either dead, or is exidently advancing towards convoluences. Death may take place in five or als hours from the first onset. In other cases the child survives for a longer period. Usually he dies in the course of the third

day.

excessively small.

Disperse.—There is no difficulty about the detection of the disorder.

The uncontrollable comoting and distribut, the interse thirst, the sujel shrinking of the tissues, the copious scrous stools, the scanty socretion of urine, and the early collapse—all these form a group of symptoms which is

very characteristic, and, andeed, can hardly be mistaken

Propuses.—When the disease is established, the prospect of recovery
is faint. Early constitue of the vomiting is a favourable sign, and any return of feedlent matter in the stools allows room for hope, however unfavormable the general condition of the child may appear. Also, a full in the
internal temperature, although the symptoms may not have visibly improved, is a sign of amendment which is not to be disregarded. If the
child sink into a state of collapse, he almost invariably diss. At any rate,
I have never known an infant to recover from such a condition. Indeed,
in any case, during the first few months of life, the ratio of recoveries or

Transact.—On account of the persistent somiting, which is one of the marked symptoms of the complaint, attempts to smaple numbers and support the strength of the child against the saliansting and continuous drein from which he is suffering, often meet with little success. Indeed, as long as the remiting is frequent and distressing, and the purging severe, it is better to abundon all attempts to introduce food into the stemach. We should content ourselves with allowing the child to drink as much teed water as he shows an inclination to swallow; for stinting of liquid in those cases has been shown to be not only cruel, but injudicious. As soon as any diminution in the comiting allows us to hope that Isod may be retained, we may begin by giving a tempounful of white wine wkey riced), and repeating this quantity every twenty minutes or half hour. If this be remited, a less quantity should be given; but if this, too, be rejected, it is better to postpone, for the time, any further attempts to supply nourishment and return to the locd water. If the stomach can retain the way, the child may be allowed to take it in considerable quantities. sucking it through the bettle like may ordinary food. If after a few hours there is no sign of sixkness, a dessertspoonful of cream may be shaken up in the hottleful of whey. Milk in any shape, even breast-milk, must be strictly forbidden in these cases.

Kouman has been strongly recommended as a food in this disease. Dr. Architekh M. Campbell, of New York, speaks highly of its value in arresting the coniting, subduing the thirst, reducing the number of the stock, and improving their appearance. He recommends that it should be given at first in quantities of half or a whole teaspeouthl every ten minutes or quarter of an hour, and that the quantity should be gradually increased. While it is being taken, icad filtered scate can still be used to quanch thirst. If the white uses whey be employed, no other stimulant is required; but if houmns be used, the child will require in occasional dose of pure brandy, of which five or ten drops may be given at one time.

On account of the early occurrence of collapse, the case should be statched with the utmost attention, and any sign of exhaustion requires to be combated by energetic stimulation. The child must be placed for five or but minutes in a warm mustard both; and afterwards boundy (but to thirty drope) must be ofministered, and repeated at short intervals, until fits warmth of the extremities is restored. It must be remembered that a high internal temperature is compatible with considerable coldness of the surface; and that it is of extreme importance to encourage the hourt's action and improve the general devalution. Often the dose of broady will have to be repeated every few minutes for a time. It is astonishing how large a quantity of spirit must be given in many cases to produce a sufficient effect over upon a young balls.

If the shild is seen early, before exhaustion has come on, and the tempendage is found to be high, it is well to reduce the pyresin by placing the child in water of 35° or 80° Palm. If, however, there is great feeble-

ness, the mustard-bath must be used as already described.

Medicines given by the mouth are very disappointing in this disease. French authors speak highly of the value of satrate of silver. If this salt be crapkered, it may be given in quantities of gr. /2 to gr. 2 several times in the day. A common prescription is a combination of bismoth with secondic chalk powder. If used, the dose of bismoth should be a large one ign. v.-x. for a child of three months old), but the medicate is usually vomited; and if retained, has never seemed to me to have the slightest effect in allaying the irritability of the stomach or arresting the purging. The use of the salicylate of lime has been proposed by Mr. Walter Kilner, and the value of the remedy has been very warmly proceed by Dr. Hutchlags, of Becoklyn, New York, in the treatment of these cases. This physican administered the drug in doses of from three to five grains every two or three hours. If a small dose was given without effect, a larger one was substituted; and the influence of the salt in controlling the purging, checking the somiting, and reducing the temperature was very decided. The medicine was found, in most cases, to arrest the stools without modifying their character; although, in exceptional cases, a simple distribute con-Breed for a short time during convalencence. Another drug to which great value has been attached, is the becomide of potassium. It is said in same cases to produce a rapid improvement in the number and frequency. of the stools.

Enemata are sometimes very serviceable. For a child twelve mouths old, three or four drops of inchmum in a tablespoonful of thus starch, with a quarter of a grain of sulphate of copper, may be thrown up the bowd. The injection can be repeated three times in the twenty-four-hours, and will be sometimes followed by signs of evident amendment.

In my experience, by far the most valuable remedy is morphic administered hypodermically. The sulphate of morphia, as being less likely to be conserted into apo-morphia in the blood, is reconsected by Dr. W. Hardman for this purpose. The quantity employed need not be large; in fact, a small dose appears to be nearly as effective as a large one. For a child of a year old, one-thirtieth of a grain may be used, combined with five or six drops of other; and the injection may be repeated in an hour's time if the symptoms continue. This treatment is best emited to cases which are seen early, before symptoms of exhaustion have set in. In such cases the effect of the sedative so introduced is to myest the voneting and purging almost immediately, without producing any signs of narcotism. The child afterwards requires energetic stimulation to help him out of the state of weakness into which he has fallen. As infant should be fed with white wine whey. An older child can take the brandy-and-egg mixture in frequent does; and it is very important to keep the extremities warm. In many of those cases, after the arrest of the more pressing symptoms, very vigilant and intelligent norsing in required to enable the child to resist successfully the depressing effect of the illness. Often there appears to be a tendency to failure of the heart's action. After making a step or two towards recovery, the patient may full back again into a state of authenia. and dis, without any return of the gustro-intestinal symptoms, or the occurrence of any inflammatory complication to captain the unfavourable change. This tendency must be combated by mustard-baths, atimulating frictions to the skin, and brandy given in frequent doses. A strong mustard-poultice, placed for a few minutes over the heart, is often of service; and the subcutaneous injection of other may prove a valuable attandant. In addition to the above measures, the belly must be covered with cotton washing, and the air of the room should be kept pure, and frequently renewed

In the attacks of choleraic diarrhous or summer cholers, which occur in older children, the use of morphia hypodermically is equally valuable. A sixteenth or twelfth of a grain may be used, and improvement follows very

quickly.

A little girl, aged seven years, was seized at I a.m. with violent remiting and purging. The bowels acted very frequently, without any straining, and the shools consisted, after the first few examinations, of thin serous fluid. The veniting continued. The child looked pinelsed and bine, and was excessively feeble. When seen at 4 a.m., the surface was cold, and no pulse could be felt at the wrist. The shools had the appearance of fairtily-

tinged mater. The thirst was intense.

One-sixteenth of a grain of morphis was at once administered subcutaneously, and the child was put to bed with a hot bettle to her feet. The diarrhous then coused, and although the comiting recurred three times afterwards, it was each time excited by the swallowing of milk. At 9 am, the temperature was 100.4°, and a few hours afterwards—cloven hours after the injection—it was noted: "Condition greatly improved; much stronger; some blueness about mouth; eyes sunken; tongue slightly furred, not day; still excessively thirsty; complains of no pain; pulse family good, 138." After this note, the child only comited once or twice, and the bowels only acted on two occasions, the stools each time being thin and offensive. The potient was som convalencent.

thin and offensive. The petient was used convalement.

The diarrhosa which sometimes succeeds to an attack of infantile cholera, must be treated as directed under the head of Inflammatry.

Diarrham.

CHAPTER VII.

DYSENTERY.

Discretive must not be confounded with the neute estarch of the signoid figure and rectum which is so common in children, and also gives rise to severe tenesmus and poin. The affection, when it runs its ordinary course, is not, strictly speaking, a discribed. Fixed matter is passed surely, and then only as small hard anybalous masses coveleped in nuclea—stools which bear no resemblance to the slimy feculent motions which constitute a familiar symptom of inflammatory intestinal enterth. True dynastery is a specific discase which often occurs in epidemics, although spendic cases are occasionally met with. It is rurely seen in England, except in the chronic form—the result of a previous scate attack in children who had been resident abroad.

Cauchies.-Dyscabory is remmon in tropical climates, especially in places which are budly drained, and therefore damp, and where the air is loaded with the emanations from decaying vegetable matter. On account of being thus endemic in ague-breeding districts, the discuss has been thought to have some affinity with intermittent fever; but it has been shown that dissentery is not necessarily generated in malarious spots, and that it may occur in places where ague is unknown. Foul sir, impure nater, bad drainage generally, and rapid alternations from extreme beat to coolness of the atmosphere are the causes to which the disease is especially attributed. In a case which was under my care in the East Loudon Children's Hospital-a little boy of five years old, in whom, after death, the minerals membrane of the whole large bowel was found to be commeted into a purplish-black dough—the illness had begun suddenly during very hot weather, and was attributed to foul constations arising from the emptying of the dost-bins of the street in which he was living. It is well known that susongst the poor these receptacles are charged with relies of every kind, and are often most offensive from the presence of decaying organic matter. Faulty autrition and chronic directive derangements appear to be predisposing causes which may include the child to be more readily affected by the injurious influences surrounding him. The disease is therefore said to be more common in band-fed babies than in infasts at the breast. The affection, when it occurs in spidemics, has a tendrary to propagate itself. The emanations given out by the dejections of a dysenteric patient are said to possess popularly notions properties. so that any one incontiously inhaling the efflueium is likely to take the disease.

Morbid Anatomy.—In the earliest stage of dysentery the mucous membrane of the colon and rectum is congested, and is swellen from inflamnatory infiltration into its substance and the underlying arcolar tissue. The colour of the membrane becomes rosy red, or may pass through the various shades of purple to slate gray of a very deep tint. At the some time the solitary glands project from the surface, and are enlarged to the size of a millet seed or a small shot. The inflammation sometimes occurs in patches, which are separated by more or less healthy-looking membrane, and these run together so as to cover a considerable extent of surface. A false membrane may be found adhering to the inflamed area. This can be separated as a this opaque film which dips down into the follocles of Lesberkulm. It consists of an inflammatory hyperplasis of the

following epithelium.

If the disease pass beyond this stage, superficial ulcorations are seen. Slonglis form upon the surface, and separate, exposing ragged, irregular alters with swellen, always edges. Dr. Parkes was of opinion that the alters began in the disterted follocles. Dr. Maclean believes that they are produced by sub-mucous purulent effusion which detaches the nursus membrane. This becomes gaugemous and is thrown off. The slonglis vary in size. If the process is might, large slonglis may be detached, and sometimes custs of the intestinal tube are elimented unbroken. Then that is yellow or sub-coloured, or even almost black. The alexes are circular or irregular in shape, and are large or small according to the extent of moreous membrane destroyed. The floor of the alter is usually formed of the sub-aucous bases, but the bosts may extend to the musicular cust, or many even perfectle the borrel as in typhoid force.

The destructive process is most intense in the lower part of the color and in the rectum; but the inflammation may involve the whole color, and even pass the file-excell value into the lower part of the dimm. If the child survive, cicutrantion may occur. A fibringer excellation is thrown

out on the floor of the ulcer, and becomes gradually organised.

Lessons may be found in other organs. The movemeric glands may be swollen, the abdominal organs may be congested, and abscess of the liver may occur. In a little girl, aged three years and a half, who died in St. Barthelemen's Hospital under the one of Dr. Andrew, two abscesses were found in the liver. The child had never lived out of England, but had suffered for two mouths from an attack of dysentery, succeeding to prolonged distribute of ten mouths' duration. One of the abscesses was situated in the right lobe, and was as large as an orange. The second, no larger than a filtert, occupied the left lobe. In the neighbourhood of the abscesses the structure of the liver was healthy. The whole of the large intestine was extensively alcombed.

The chronic form of dysentery is not always the consequence of unhealed ulcers. Still, in many cases ulceration is present. In advanced cases the intestinal tube may be strophied, with complete disappearance of its glandular structures, and extreme thinness of its costs. In a less advanced stage, the arcolar tissue, and even all the costs of the boxed, may

be greatly thickened.

Symptoms.—The illness begins with slight fever, loss of appetite, and semetimes masses. The child complains of measuress in his belig of a colleky character, but his sufferings do not seem to be very severe. Then a sudden feeling of tenomess urges him to evacuate the bowels, and the contents of the rectum are discharged, more or less control with tenselous mucus. The passage of the section, however, produces little or as relat. The desire quickly returns, so that the shald almost constantly requires the stool, and sits straining with extreme rislence. Nothing, however, is resided but offensive mucus, with occasional minute sephsia. The noterous may be streaked or mixed more or less intimately with blood. In lad cases, it resembles a rese-coloured july. All this time the griping

continues. The child often sereams with pain, and may be found resting on his kneed in his bed, with his head buried in the pillow. Still, there is little or no tenderness of the belly. The face is pole, with a distressed expression. The child cannot sleep. His torque is white, and his skin dry. He seldem complains much of thirst, but cuts little, either from loss of appetite, or from the increase of abdominal pain, which he seem finds is provoked by the taking of feed. Sometimes, for the first few days, the stock may continue to be fecalent. Then, as the griping pains and tenseus increase, the dejections become more scenty and frequent, and

reasest of focal matter mixed with pelatinous noncus.

The disease does not always begin thus mildly. It may be ushered in be a severe rigor, or an attack of convulsions, with high fever, distressing griping pures, and almost constant tensorius. There is burning pain at the arms, and the child, if permitted, will remain, us long as his strength allows almost constantly scated on the night-stool. As in cases of scute informatory distribus, the straining may induce prolapse of the rectum. The muons passed from the bowels is bloody almost from the first; and scurtines pure blood, bright or dark and clotted, may be evacuated. However it may have begun, if the disease last beyond a week without improvement, sloughy matter begins to be discharged from the bowels. The stools, instead of consisting merely of offensive bloody mucus, begin to contain dark-coloured, shreddy matter, mixed with reddish, dirty water. The other of these stocks is intolerably facted, and grows more and more insupportable. The particles of slough generally got larger in successive depertions, and sometimes optindrical portions of dead and patrefring museus membrane may be disclarged unbroken. It is comparatively schlou, however, that this stage is reached in the case of a child. The diense is no exhausting a one that death usually takes place before much alongling of micross membrine has had time to occur. Sloughing is rarely found in children under twelve years of ago.

The abdomen namely becomes distended us the disease progresses, and fines is often some bunderness on pressure over the colon. The weakness now becomes very great. The child lies back with a pinched, haggard face, sleeps little, and is very restless. His lands and feet are spt to be odd, although the internal temperature is high. He is this sty, but cares little for food. He may be troubled with veniting. His water is scanty and high-coloured; sometimes it is passed very frequently, but retention of urine is apt to occur, and require the use of a catheter. His tongue, very forced on the dorsom, becomes red at the tip and edges, and often day.

In favourable cases the distressing symptoms gradually subside. The temperature becomes normal; the temesmus grows less and less, and disappears; the stocks lose their blood and contain much grayish sureus; they begin again to show signs of feedent matter; the insupportation dynasteric release diminishes; the tengue cleans, and the appetite and

sparrie improve.

In fatal cases the abdomen is distended; the pulse is very mpld and feelie; the prestration is extrame; the face is dusky and haggard; the extremities are cold; the child grown delirious, or sinks into a state of stuper, in which he dies. Towards the end purelysis of the sphineter may occur, so that the partlet of the rectum is seen wide and gaping. In exceptional cases extern of the lower extremities is noticed; and Dr. S. C. Bussy states that this is sometimes associated with discolouration of the skin of the feet and logs.

A certain variety in the symptoms can be noticed in different cases,

The fenesimus is distressing in proportion to the degree to which the rection may be implicated. If, as may happen, this part of the color is only slightly involved, the straining may be insignificant, or even altogether absent. In such a case the dejections are more feedbat, and contain altered tells mingled with the mucus and blood. The number of the shock is very variable. There may be from two or three to ten or twelve, or even more, in the four. In the latter case, even if the quantity of nations discharged on each occasion be scanty, the whole amount passed in the day and night may be very considerable. The temperature is elevated. The mercury in the seeming is often found to rise to 102° or 103°, but stake in the meraing to below 100°.

If the child his, death usually takes place from exhaustion, the patient being worn out by pain, want of sleep, and the profine discharge of a highly albuminous fluid from the bessels. Sometimes, however, the fatal termination may be reached in a different minner. The discuss may appear to take a favourable turn, and the dysentenic symptoms may have even subsided, when the child is suddenly seized with convalsions, then sinks into a state of come, and dies in a few hours. Dr. S. C. Busey has connected these cases with thrombosis of the cranial sinuses—a complication which is always to be fewed in the indant, when his strength is pro-

foundly impaired by exhausting disease.

After the subsidence of the acute symptoms, dyembery often passes into a chronic stage. The child remains pale and thin, and continues to lose flesh. His bowels are open several times in the day, and the motions, which consist of scylosin and fleshy-looking busps, are passed with straining. His tongue tends to be day, and is often glazed, or is flavored with transverse eracks. He complains of frequent pains in the belly of a colicily character, and these are usually excited by taking food. The child is institually thirsty, and is sometimes fererish at night. Such cases may go on for months, or in older children for years. Even in the most favourable cases, cancellescence is usually alow, the bowels being costive and troublescene for a considerable time after the disease is at an end. The colon often remains torpid, while the irritability of the rectum continues; so that, although the apparent need of evaruation is argent, and the straining distressing, small stools consisting of scylada embedded in muces are alone discharged.

Disposic.—As long as the stools continue to be feedent, the inflannatory process may be judged to be as set in an early stage. Afterwards, when gelatinous sources, clear or blood-stained, is possed unmixed with true faces, or containing merely hard small scylula, we may conclude that the inflamed area is still limited to the rectum and the lower part of the colon. If later, when the tensames and griping pairs are severe, the unces is again contaminated with thin feculent matter, it is probable that the inflammation has extended higher and has involved the upper

part of the colon, and, perhaps, a portion of the illium.

In the surficet stage there appears to be nothing special in the symptoms themselves to indicate that the disease is anything more than an ordinary attack of severe intestinal entarth. Afterwards, when the affection has become more fully developed, the characteristic factor of the depetitions at once rescals the nature of the illness. Intraspaception of the bowel is also marked by the passage of blood-stained, non-fecularit moral, combined with great straining and severe colicty pain. The distinguishing points between the two discusses are elsewhere described (see page 674). Property of the attack, but also to the time at which the patient comes under observation. Dysentery is a disease in which early treatment is of the atmost importance. If the child be seen during the first few days, or even before the end of the first week, he will probably recover under patiences treatment. Absence of severe depression of strength and spirits, placifity of expression, and a fair pulse are all signs of favourable import; and as early return of feculence in the stools, if combined with a domination in the colicky pains and tenseous, may be taken as an indication of approaching convolusioner. On the contrary, early prestration, a haggard facion a feeble, frequent pulse, great restlessness, hiccough, a dry tongue, a gaugement of observation the stools, and, especially, delirium—all these symptoms should occasion the utmost anxiety.

If, after the cessation of the ordinary dysenteric symptoms, the child remain prostrate and stopid, lying in a drossy state with eyes only partially closed, his pupils sluggish, his breathing irregular or of the Cheyno-

Stakes type, we should fear the occurrence of cranial thrombosis.

Doubsent.—If the child is seen early, he should be put into a both of the temperature of 95°, and he kept there for ten minutes, or a less time if he feel faint. He should be then put into bed with het forcentations to his helly, and take a draught composed of easter-oil in conjunction with rhaborb and handanum, in some arountic water. This combination is believed to have originated with the late Dr. John Scott, examining physician to the H. E. I. Company. It was kindly communicated to use by Dr. Chevers, who, in his own large Indian experience, has been accustomed to only greatly upon this remedy if given sufficiently early in the disease. To a child of ten years of age the draught may be given in the following proportions:

B. Tinet, epii	現大
Olei ricini, Tinet, rhei comp	n st
Agum custo	3 m

If after this draught the bowels act more than twice in the next twelve hours, as ourses containing ten drops of hardwarm in half an ounce of starch-or gum-water, may be thrown up the bowel. In the case of children, opium should be used with especial care, on account of the early prostration which is so apt to occur in this disease. If given at the first, its use should not be contained too long. Dr. Morehead speaks warningly against also prolonged use of opium, which he says makes the dejection pasty

still searty, and is injurious to favourable progress.

If the practitioner fear the use of opium by the mouth, ipecacusaha is as useful a remody in the young subject as it is in the adult. Six grains raty be given to a child ten years of age; two, three, or four grains to a yranger child. The dose must be mixed with as little fluid as possible, at it is to be repeated every sky at sufficient intervals for the child to be able to take nourishment; for the ipecacusaha must not be given until two hours have slaped after food. Usually, twelve hours may be permitted to pass between successive doses of the drug. The diet should consit of ment-heaths, thickened, if necessary, with beiled sugo or arrow-root; and of boiled milk dilated with barley-water, and alkalinised with a few-drops of the succharated solution of line. The child must be kept

as quiet as possible in his bed, and painful tenesions must be treated with injections of epium and starch, and by het applications to the belly and asses. All through the acute stage the child should be rigidly confined to his last. The air of his room should be kept pure by open windows and the proper use of disinfectants; and all sucreta should be disinfected be-

fore removal from the sick-chamber.

If the case is seen early, or is of a compensariely mild character, the above treatment will be usually effectual in checking its further development. In the very severe cases, or those which are seen after the and of the first week, when gargrenous alonghs are being passed, the belly should be covered, as in the former case, with hot applications or impenting stopes. Increasuable should be then given in one fall dose (gr. vj.-vii), to a child of ten cours of age), and the quantity can be repeated in eight or ten hours. If thought advisable, a few drops of landamum can be given half an hour before the increasuable. After taking the latter the child should be kept perfectly quiet, and must take no food or fluid. If he be very thirsty, however, he may be allowed to suck small image of tee. Dr. Mactean speaks very legally of the value of the rentedy so administered. According to this physician, the straining and colle subside, the blood and sline disappear from the stools and are replaced by feedlest matter, the skin becomes most, and the patient falls into a quiet sleep.

The value of mercury in the treatment of dysentery is a question apon which very opposite spinious are held. While some writers warmly acrocate its use, others as warmly denounce its supplayment. The tendency of the present day, however, appears to be to neglect mercurials in favour of spectrumin. Dr. Morekend was accustomed to prescribe a combination of calcard or blue pill, spectruming, and opinio, every four, six, or eight hours; and to give, in addition, a small, occasional dose of enstor-eil. This treatment he considered especially applicable to the first few days of the disease, although it is also satisfied at a later period. He relates the case of a child, three years of age, who had been all with dysenteric symptoms for eighteen days. Two grows of spectrumbs, three of extract of gestion, and one such of Dour's powder and blue pill, were given avery three hours, with great benefit. When, after a few days, feculent matter reappeared in the stools, the opion was contited from the prescription.

and the other remedies were given for some days longer.

Whether moreary be given according to this method, or the child be treated with ipocaccanha alone, as is the more modern practice, an consional dose of castor-oil is often indirated. If the abdomen becomes full and tense, and the dejections are scanty, a dose of the oil (two tenspoonfuls to a child ten years of age) may be given with adventage. If the tenserure is distressing, an enemn of starch and opinm, in the proportions already recommended, may be used at sufficient intervals. If, towards the end of the discuse, the child appears much endeckled, the brandy-and-agg mix-

ture should be given.

In the case of an infant, the treatment varies in some degree from that found useful in older children. Iperacuants is not to be recommended for patients under twelve months old; for, according to Mr. Seriver, infants of this age do not bear well the names and starration which this treatment involves. For these patients caloned is a preferable remely. To a child eight or ten months old half a grain of caloned may be given norming and evening, and or enema containing one or two drops of budanum twice in twenty-four hours. Mr. Seriven speaks highly of lensing the gums in all cases of dyscatery in teething infants. He disapproves of

hereacous foods; and even milk—unless the child be at the breast—he considerably restricts in quantity, preferring to rely for neurishment upon beef-ten and chicken-leveths. As in the case of other forms of bowel complaint, these meat-broths may be advantageously constined with an

equal perportion of burley-water.

In no instance should the ordinary astringent remedies be used while the illness is acute; but when the disease passes into the chronic stage, they may be judiciously rewrited to. In such cases, large doses of boundth with aromatic chalk may be given; rhatmy and catecha are often of service; and the permitrate of iron is an especially valuable remedy. Enemats of weak attrate of silver (half a grain to the sunce) are often of considerable value, the bowsts having been previously cleared out by a copious lajection of warm water. These injections should be large, and must be given very slowly. For a child ten years old a couple of pints may be used. Instead of a nitrate of silver injection, simple warm water may be employed, or a solution of alam (gr. xv. to the cance) as recommended by Mr. Scriven. While these remedies are being made use of the child shreld take a daily dose of Doren's powder, if the straining and abdommal pain continue.

Cases which have resisted treatment by astringents will sometimes yield readily to iperacusaha in doses of one grain three times a day, with an occasional injection of landanum and iperacusaha in warm storch if the tenesures is distressing. At the same time the food should consist of strong ment-assence, well-boiled rice, pounded under-done ment, and builed soils, if it agree. Eggs are often not well borns in these cases,

A remedy which is very morful in the chronic stage of dyscatery is the purhloride of mercury given in quantities of ten or fifteen drops several times in the day. It may be usefully combined, as Dr. Ellis has suggrated, with the fracture of cinebons. Sometimes the perchloride has been found to be more useful in very small doses frequently repeated, as fee drops every two or three bours. In any case, if the dose is small it must be repeated more frequently in the day.

In all cases of chronic dysentery, great care should be taken that the belly is duly protected from alternations of temperature by a broad faunch tankage, that every attention is pool to promoting the action of the skin, and that the surface of the body is kept perfectly clean. A complete change of climate to a bracing sen-air is of the utmost service in complete-

ing the cure.

During convoluences from dysentery the child's appetite is often enormous. Great watchfulness must be therefore used that he do not cut a quantity of indignatible substances, such as new potatoes, unripe front, or great excess of farinaceous matters and sweets. He should live principally upon ment once rooked, eggs, fresh-made broths and nulls, and wine, in the shape of port or sound claret, may be allowed him with his dinner.

CHAPTER VIII.

GASTRO-INTESTINAL HÆMORRHAGE

Harsonimics may seem in the young subject both from the atomach and bowels. In gustric harnorrhape the blood may be venited directly from the atomach, or may pass down the alimentary tube and be voided dark, and more or less altered in appearance, with the stools. The presence of blood in the evacuations is, therefore, no proof that the source of blooding is in the bowels. Nor, indeed, does blood spected from the month always come from the standard. Even blood which is brought up by evident retching, and intimately mived with cardied milk, may not, and often does not, owe its origin to the gastric nuceus membrane. Infants at the breast not sufrequently vomit blood which is drawn with the milk from the breast of the mother. Cracked nipples are often very invitable, and blood easily. In such cases, the not of sucking may determine a harnor-winge from the fissure, and a large quantity of blood may be availowed by the child. At the end of the neal this is often consted with part of the milk which has been taken, and is a cause of great alarm to the parents.

In older children who suffer from epistaxis, the blood which flows down into the threat from the posterior muce is almost invariably swallowed. If this be large in quantity it is sometimes consisted, and appears then to have been thrown out by the stomach. So, also, alcomation of the back of the threat and of the game, such as is seen occasionally in scretulers and builty-nourished children, may be a cause of bleeding. If at the same time the child be suffering from disordered stomach, and vomiting be frequent, the efforts of retching may determine a flow of bleed from the ulcometal surface. The blood mixes with the contents of the stomach as those pass through the mouth, and gives the appearance of homograps from the derranged gastric membrane. I have known such a case to occur

and he a couse of great perplexity.

Cascation.—Real gastro-intestinal homorrhage may be due to many different conditions. There is a special form of homorrhage which is occasionally seen in new-born infants as a consequence of emmes which have not even yet been fully made out. Molecus acceptorum occurs usually within a few hours of birth. It is mid to be more common in gots than in boys, although this is not the experience of all observers, and study, well-nourished children are as amenable to it as the facile and the fruit. The occurrence is fortunately very rare. Sometimes it has been known to follow a tedious labour, in which the childra hard had suffered great compression. In other cases the respiratory function after birth and been established with difficulty. Often, however, the bleeding can be attributed to no such reason. Sometimes it appears to be the direct result of ulceration of the atomich and duodenum. Such a lesion has been correspondly discovered in the new-born babe, and has been ascribed to followlar gastritis by Billard; to an embolism of the unbilled win

pair the liver, and extending for some distance into its branches, by London; and by Steiner, to a fatty degeneration of the Mood-wassels. An example of such a gastric ulcer was shown by Dr. Goodhart in 1881, at the London Pathological Society. A new-horn infant had deed from hemateurs is thirty hours after its birth. The child's appearance was leadily. On examination of the body, after turning out the blood-clot with which the stoonach was distended, a small, oval ulcer, one-righth of an inch in length, was seen at the cardine end of the stomach and close to the greater curvature. This score was clean-ent, sharp-edged, and from in tenture. In its floor was a dark speek, which proved, on close impection, to be an open vessel. It is, however, uncommon to find any distinct have hot surface. In the large majority of cases the hemorrhage appears to be emplifiery, and nothing but a congested state of the vessels of the

storach is discovered on examination of the body.

Sune writers, especially Grandidier and Bitter, have attributed the bleeling to a condition allied to be morphilis; and certainly in cases where death rosalts from profess capillary homorrhage in the new-born child, some special and unusual tendency to bleed from slight causes must evidently prevail. In one of four cases published by Dr. Halliday Crown, a marked homorrhagic tendency existed in the father. In another, although so family predisposition could be detected, the child himself had an exidont tendency to bleed, for the pressure of the forcess with which the infinit was delivered had produced an extensive occhymosis on either side of the head. In a child possessing this unfortunate tendency, my crosswhich interferes with the establishment of responsition will increase the pressure on the veins, and may thus determine an effusion of blood from the capillary system. Still, with regard to this supposed constitutional infirmity, it must be remarked that melena accounterum is said not to have been opecially observed in families subject to true homopialia; and that of infinits who survive, few show in after life any particular tendency to hauscerbice.

In older children gastro-intestinal homorrhage may be due to either

general or local courses.

Of the general casses, harmorrhagic purpura is perhaps the most commen. In this disease the bleeding occurs not only from the storach and bowds, but also from the nose, month, and hidneys, and into the subcutances tione. The tendency to harmorrhage is only a temporary phonomenas, and comes when by treatment or otherwise the consistion of the patient has become improved.

In hemophilis the tendency is permanent, and persists to the end of life. As in the former case, the bleeding is not confined to the gastrie or intestinal amount membrane, but may occur from any reasons surface and

into the subcutaneous tissue.

In the malignant forms of all the emptive fevers general hymotrhage may also occur. In such cases the symptom indicates a profound con-

tazination of the system, and is of most unfavourable angury.

The usual form of gastro-intestinal hamorrhage met with in the child anses from purely local causes. Ulceration of the bowels, such as occurs in typical fever, in cases of long-standing intestinal catarrh, and as a consequence of tubercular or serofulous disease, is a common source of blooding. The same symptom is seen in the ulceration arising from dyseastery. In intersusception, a prominent feature is the passage of blood and bloodstaned success from the bowel. The stritution of worms will sometimes induce blooding from the monocus membrane; and intestinal derangements which give rise to straining, especially if the bourd prolapse, are a common

cause of admixture of blood with the stools.

There is one other came of hemorrhage which must be mentioned.

This is polypus of the rectum. Polypi are said not to be mecoamon under
the age of ten years, and to occur more frequently in boys than in piris.

These fibro-callular growths spring from the sub-mucous tissue, and are
covered by the nuccous membrane. They are more uscular in the child
than in the abult, with a greater tendency to bleed, and are attached by a
slender pedicle which readily gives way. The polypus varies in size from
a pen to a murble, and may be sometimes seen within the bowd, if near
the sphinotes looking like a bright red obsery. It bleeds easily, both during the passage of a stool and also independently of defectation, and if its
sent is near the outlet, the effected blood may be mixed with nursus.

Symptons.—In the case of the new-born buby, the homorrhage which is special to this period of life begins usually within a few days of birth—in the majority of instances within the first twenty-four bourn. It may, however, be delayed. Of fifty cases collected by Dr. Croom, the bleeding took place—in thirty, between the first and sixth day; in eight, between the sixth and eighth; in four, between the eighth and tweifth; and in eight, between the aveilth and eighteenth day. The blood is sometimes ejected from the strength as well as passed from the borrels. Sometimes, however, makens occurs without homotemesis; and less commonly, hermatemesis without makens. Of eight cases seen by Lederer, four had homorrhage from both stomach and howels; three from the howels alone:

and one exclusively from the stomach.

The appearance of the blood may be preceded by great restleaness and pallor, a smaken belly, and smiden prostration. When the blood appears enternally the infant scenes to suffer no pain. He pursus apparently an ordinary stool; but this, on inspection, is found to consist either of dark tready matter from admixture with meconium, or of dark pure blood. If, at first, dark and contaminated with the contents of the bowels, the blood soon becomes red and unabtered. In quantity it is often sufficient to seak the lines and the diagers. The dejections succeed one mether rapidly, and after each passage the child is laft cold and moticuless, and seemingly exhausted. In sure cases, if the discharge is sudden and cries techny; but if the flow be profuse, soon falls into a collapsed state. He lies quietly, with pallis fare, cold extrematics, as almost imperceptible pulse, and a surdan fontuable.

After continuing for about twenty-four hours, the hamorriage, if the child survives, usually stops. In most cases blood comes to be spetch from the mouth before the flow from the howels is at an end. Sometimes, after a temporary intermission, the blooding returns, and may continue, in diminished quantity, for several days longer. When the blooding begans for the first time after the full of the coul, homorriage may also cour from the umbilions. Puls watery blood occas from the savel, and the flow persists in spite of nil efforts to arrest it. In some cases the efficient of blood is confused to this region, but more commonly it is quickly followed by homorrhage from the bowels, and, in some cases, from the care, the gums, the vagina, and into the skin.

If the homorrhage he profuse the child may not recover from the state of colleges into which he has fallen. In the favourable cases he gradually improves, but remains weakly and pulled for some time after-

wards, with a tendency to intestinal cutarrh.

In later infancy and childhood, gostro-intestinal harmovings, trising from the causes which have been mentioned, usually occurs in the form of meleva. The bleeding is, as a rule, more profuse when it is excited by causes octing through the system generally than when it occurs in consequence of a purely local lesion. In harmorrhagic purpose large quantities of blood may be passed per atum, bright red and eletted, or more or less aftered and blackened. In this disease, as also in harmophilis and in the malignant forms of the specific fevers, the tendency to harmorrhage is a general one. The nose and guns bleed easily, the skin is spetted with peterkin, or larger harmorrhagic stains, and the urino is often discoloured.

When the bleesing occurs from local causes the effusion is scanty, as a raic, and is evacuated from the bowel, pure, or mixed with the collinary facial dejections. In typheid fewer hierarchings is the exception in young subjects. In this and the other forms of intestinal abscration the bleeding when present, is seen in the form of small black clots at the bottom of the chamber-pure. In dynastery, and in cases of integritation of the towel the blood is brighter, and is passed pure, or mixed with micros. It may amount in the latter disease, to assemd ounces, but is rarely seen in so large a quantity. Usually only a few temporability passed at a time, and the discharge is only effected with excessive straining and pain. The arritation of worms is not often accompanied by bleeding, but in non-cause a beight red elet may be passed per minus. Catarrh of the lower part of the colon, expectably if the bowel prolapse, may give rise to slight according. The blood is usually in the form of light-coloured streaks, but sometimes small red lumps may be execusted.

In polypus of the rectum the blood is also bright red, and may be in considerable quantity—a tablespoonful or more—pure, or mixed with mages. If the growth be small and above the sphineter, the discharge of blood is accompanied by no poin; but if it be large, and especially if it be aught within the sphineter, it may give rise to much straining and disconfort. In such cases there may be frequent desire to go to shoot, without the appearance of a dejection; much much is passed from the bowel, and the fixed masses may be grooved from the pressure of the growth during their passage. If the discuss is allowed to go on long unchecked, the child becomes pulse and exchectic-looking from constant loss

of binock.

Dispected.—The special form of hemorrhage of the newly-horn (melions scenatorum) is so rare a complaint that in every case where blood is ejected from the mouth or passed from the boxel is a terr young indust, Se should rather suspect the blood to be furnished from some extraneous source; and if the child be at the breast, our first care should be to examme the nipple of the mother or nurse for fissures or signs of erosion. A true besievinge in a young baby is at once indicated by pallor of the face, staking of the footmelle, and depression of temperature. If, after bruging up a quantity of bright blood, the child seem contented and happy, without loss of colour or my sign of depression or distress, it is surfiely that his own body is the source of the bleeding. If, on the contrary, blanching of the face, coldisco of the extremities, and signs of genstal depression accompany or precede the passage of blood, there can be so doubt that the hamoerbage is no misbading phenomeron. Still, it is aften far from easy to ascertain its source. If the blooding occur at only a short interval after birth and succeed to a prolonged and difficult lasour, or armse in a child in whom the respiratory function has been with difficulty established, we may suspect the phenomenou to be a suggestments.

of a conjected state of the viscers, milest probably, by a special bruncerhagic tendency in the child. If it occur some days inter, and have been preceded by signs of uncasiness after taking the breast, some difficulty of deglinition or frequent vonsting, the effusion of blood is possibly due to a gastric or duodenal alter; but a positive diagnosis of this lesion turned be ventured upon. If hemorrhage occur solely from the naval, and be accompanied by an interest tint of akin, the case is probably one of congenital deficiency of the bile-ducts. If previous infants in the same family have died after presenting similar symptoms, the probabilities are strong that this distressing malformation is present. This subject is considered

clerebers (see page 717).

In later infancy and childhood we should imquire about epistaxis, and examine the throat and gunes for alceration and signs of recent bleeding. If the apparent harmstenesis be due to spistaxis, blood will be often seen trickling down the back of the pharytor. If the case he one of homeorhagic purpars, we notice the potential on the skin, and can detect the general disposition to ready effinious of blood. In cases of homoglotia the same tendency is probably a well-recognised poculiarity in the family, and information as to its existence is usually fortheoning. In the miligant forms of the specific forers the accompanying symptoms are usually sufficiently characteristic of the nature of the illness; and, moreover, the axistence of an spadence in the neighbourhood is probably well known.

In cases where the hamorrhage is due to a local cause, the source of the bleeding may be discovered from the symptoms by which the passage of blood has been attended. Small black clots lying at the bottom of a thin, dark-coloured water or pen-soup-like fluid, usually indicate ulceration of the bowel. Small red clots or streaks are commonly dependent upon enturing of the lower part of the colon, with tensorms. Bed blood in larger quantity, pure, or mixed with mucus, and passed with great straining and poin, may be possibly due to an invagination of the bowel, or may be the consequence of a polypus of the rectum. In cases of intraspectation other characteristic symptoms are present. If the blood be due to a polypuid growth, this may be often seen at the end of deflection cought in the grip of the splaneter, and looking like a bright red ball. If the singer is intendered into the rectum, the polypus can be distinctly felt attached to

the posterior wall of the boxel by a stender stalk.

Progression.—When hemorrhage occurs in the new-horn infact, the danger is always great; but the probabilities of a favorable ione depend partly upon the degree of strength of the child himself, and partly upon the opinion we have formed as to the source of the bleeding. A wellnounshed infact of robust constitution can often bear an extraoritrary loss of blood without sinking under the hemorrhage. A weakly infant succembs quickly. If we have reason to suspect an along of the stemach or duodenum, the prognosis is exceedingly unforcumble. Also, if conbours, and if it return after apparent cossation, we have remon to fear the worst. Of Lodeper's eight man, five died. Of twenty-three cases collected by Billist and Barthez, clears ended in death. Dr. Croom estimates that, taking all forms of the disease together, the mortality is about sixty per cent. In older children the danger of intestinal hemorrhage depends upon the cause to which it is owing, and the severity of the condition of which it is the consequence. Rectal polypt are readily removed; indeed, sometimes they separate spoutaneously and are discharged with a stool.

Treatment—In cases of melecas pecuatorum, the child must be fed with his mother's raille given with a spoon, or falling this, with ma's or goth milk, diluted with an equal quantity of barley-water, with whey and mean, or with white wine whey. Pancrentised milk, prepared according to the directions given in the chapter on Infantile Atrophy, is also very satisfie. Whatever may be the food, it should be given cold and in small quantities at a time. The infant must be kept perfectly quiet. An icolar should be applied to his belly, and his feet must be kept samm. He may take internally a grain of gaille seid, or a couple of grains of the extract of knameria, every two or three hours; or one or two drops of oil of turpentine may be given every hour. In addition, four or fire curces of the infance of knameria may be thrown up the bowel. The strength of the child must be supported by white wine whey, or by a few drops of beauty given at short intervals.

In other children homorrhage must be treated according to the condition which has given rise to it. Polypus of the rectum is removed by sating the growth with a forceps and passing a silk ligature tightly sound the pedicle. But in early life the slender stalk often surps when stretched, and the mere action of drawing the polypus below the sphincter often detaches it from the amoons membrane. Its separation is followed by no

bleeding, and humorrhage couses from that time.

CHAPTER IX.

ULCURATION OF THE BOWELS.

The subject of alcoration of the intestinal macous membrane must, necessarily, he referred to in describing the various discusses in the course of which such alcorations are liable to arise. Still, it seems desirable, in addition, to devote a special chapter to its consideration. It is not unconmen to need with alcoration of the howels in children who have not recently suffered from acute disease, and in whom no special cause for the intestinal lesion can be discovered. Such latera cases are not always easy of diagnosis, for alceration of the bowels is not necessarily attended with diarrhosa. Purging, when it occurs, is dependent not mour the elecrative process, but upon the intestinal enterth which accompanies the breach of surface. When the estarth is at an end the purging season, although the sicers may be still unbealed. Typhoid fever in early life often runs its whole course without any looseness of the bowels, and this in instances where, from the length and severity of the attack, there can be little doubt that ulceration has been present. So, also, in cases of scrolulous or tuberoular alcoration of the intestinal uncons membrane, the occasional attacks of purging are often separated by considerable intervals during which the howels are sluggish, although on post-avorten examination of the body. extensive breaches of surface are obscovered in the intestinal track

Ulcomation of the bowels may be acute or chronic. The acute form is seen in cases of typhoid fever, dyentery, and inflammatory conditions of the bowel which give rise to lexions of the muccus membrane, either by the separation of superficial sloughs or by elecentive inflammation of the glandular follicles. If life be prolonged the alcorative process may pass, in certain cases, into a chronic stage, and lead to serious interference with the natrition of the patient. The chronic form of the lesion will alone be considered in the present chapter. It occurs in two principal unriches in the child, viz.: the simple ulcoration from prolonged intestinal catarrh, and the scrothlous or tabercular ulcoration, which so often accompanies a sin-

ilar condition of the lungs.

Moried Assetsusy.—Simple ulceration of the bousds is seen principally in infinite and the younger children. The part of the bowel affected is the large intestine and lower part of the thum. The ulcers are very similar, and can best be detected by inspecting them sideways. They may be seated on the summit of the longitudinal folds of mucous numberse, and are then shoughted or sinnous. Others are seen between the folds, and are small circular breaches of the surface, which can often only be detected by careful scrutiny, as their bases are of the same tint as that of the macous membrane surrounding them. The process by which they are formed appears to be as follows:—The follicles become anlarged and elevated above the surface like little pearly bends. Their contents then become purulent, and the follicles still further increase in size. Lastly, the roof of

He follicle is detached and the contents escape, leaving a clean-out alone.

Mised up with the alones are other follicles—large, elevated, and semi-transparent—the contents of which have not yet become purefect. The alone are roundlish or irregular in shape, and vary considerably in one.

Their edges are well defined and congested their floor moves, and of a

reddish or grayish colour.

Tubercular or scrofulous alceration of the bowels in more common in children of three or four years old and upwards than in infants. This form of losion is usually associated with scrothlons or tubercular disease of the lung, and almost invariably with easeous enlargement of the mescutaric glands. The ulcoration appears to be chiefly of a scrofulous nature, the presence of the gray granulations being only an occasional and secondary consequence of the cassons degeneration of the followar structures. The sent of the disease is usually the illum, and the glassis affected are the folicies of Peyer's patches and the solitary glands, especially those in the teighbourhood of the ilio oscal value. Primarily, the destructive changes are limited to these parts. Thus, the fellicles swell up from great multiplication of their corpuscular elements. They then undergo cheery degeneration, soften, and form a number of closely-set ulcers, which mute at their borders and give rise to more or loss extensive areas of ulceration. Their oldes are soft, red, and uneven, and their floor red or gravish in colour. The alcrentive process does not confine itself to the area of Perer's patches, but extends laterally along the course of the smaller arteries and wins by a similar process of essention and softening, so as often to metric the get completely. The unlitration advances into the neighbouring thomes, and causes gradual disintegration and destruction, same time the alear deepens, but soldom passes beyond the muscular cost. As a secondary process gray granulations may appear, and military nodules are then seen in the tunion adventitia of the smaller vessels, especially the enteries and lymphatics. The errous surface at the site of the elect is spague and reddened, and may also contain gray granulations. Sometimes aillienive peritonitis is set up, and neighbouring portions of intestine become glosd firmly together. If in these cases rupture of the floor of the alor take place, the intestinal contents are extravasated, not into the grustal peritoneal cavity, but into a limited peach formed by the adherent Introla.

The simple form of after may cicatrise and leave little trace; but this termination is less common in the more severe form which is due to a tabercular or scredulous cacheain. Still, even in these cases cicatrisation may take place here and there, and on account of the transverse extension of the breach of surface, may lead to scrious contraction of the channel of

the gul-

Symptoms, — Diceration of the bowels may be attended by few symptoms, and if, as sometimes happens, distributed is absent, the interior of the flass may be completely overlooked. As a rule, the special symptoms of the intestinal lesion have been preceded by a prolonged attack of purging, which has caused serious interference with untrition, and greatly reduced the general strength. Abdominal pain is not necessarily present, but often attacks of pain of a colicky claracter are complained of, and these are usually found to procede the passage of a short. There may be no obtions tenderness on pressure of the abdominal wall, but, in many instances, dup pressure in the course of the colon seems to give rise to measiness. Still, even in cases where tenderness appears to be completely absent, some tension of the abdominal parieties will be noticed. Indeed, this

symptom is nearly always present, and careful polyation of the abdomen will marely full to detect it. The tension is not necessarily general. Often it is limited to the side upon which the observation exists, as if the nonecular parieties contracted instinctively to protect the sensitive part from injury. The belly is usually more or less distended from flatalent accumulation, but this symptom raries in degree. Still, although fuller than natural, it appears normal to the eye; and there is no loss of the natural nurkings such as is seen in cases of personatis. If the measuremer glumbs are enlarged they may be often felt on deep pressure, and the superficial veins

of the abdonesis are then unanturally visible.

The appearance of the stocks is very claracteristic. The bowels may not be relicited many times in the day. Sometimes they are even costive. In the latter case the stock vary is character. They may consist for the most part of light-coloured lamps, often covered with miners, and sometimes showing a streak of block. But every now and again a loose motion will be proved which at once discloses the usture of the case. The motions which are characteristic of the lesion are of two kinds. The first consists of a dark reddish-brown water, intensely offensive and patrid-sensiting. It deposits a soliment of shreddy, they matter, often containing little black spots which are minute clots of blood, and sometimes small, pule, hard fread lumps. The second is a pule yellow homogeneous fluid of the consistence of cream or thin paste. It often has a cursous mucilaginous appearance as the vessel containing it is tilted from side to side. This form of stool has like the first, an offensive small, but not, like it, an odour of purposation.

Hemerrhage from the bowels is seldem exploits. Usually it seems as black clats, like little particles of soot; but sometimes larger black lumps may be seen. If there he an ulcer at the lower part of the rectum the blood is resider in colour, and may be in larger quantity. The number of the stock varies from one or two to trouty, or even more, in the twenty-four lours. Their passage is sometimes preceded by alight colicky pain; and if the lower part of the rectum is the seat of alteration, there may be some straining at stool, and the lower may prolapse. It is not common for an older to occupy this part of the rectum; but, should it do so, some serious consequences have been noted. The irritation consists by the losson just within the internal aphineter may cause spannedic closure of the lower outlot, so that much difficulty is met with in evacuating the bowds, has a result of this obstruction, great calargement and hypertrophy of the rectum may occur, and we find tynquinite distention of the telly, and

many of the symptoms of impaction of fiscos,

A child who is the subject of intestinal observation is not necessarily very thin. The degree to which nutrition is interfered with depends upon the amount of intestinal estarch and consequent discribes. If the purging is severe, wasting is rapid; but if the bowels are not much relaxed, nutrition may go on well and the child progressively increase in weight, although the character of the stools indicates that the observation is the appetite is often good, and the torque clem; and except for a certain purehed look of the face and distress in the suppression of the child, he neight be thought to be suffering from a very trifling complaint. Even in cases where the observation is of a scrotulous nature the same rule holds good, provided the language are healthy. Caseous enlargement of the mesenteric glands door not necessarily produce wasting; and if the observation is not extensive, the temperature high, or the purpose were, the lesson may produce no noticeable impairment of the child's na-

trition. The best of the body is not always increased. I have known open where characteristic stools, containing shreddy matter and blood-data continued to be passed for months, and where cases as glands could be distinctly felt in the abdomen on deep pressure, non-their whole course and end in recovery, with a temperature which solden rose above 99°.

Ulceration of the bowels is sometimes complicated with peritonitis. In cases of scrofulous or inhercular obsention of the bowels, tubercular perturitie is a common accordary lesion. But a simple ulceration may also be accompared by inflammation of the serous image of the abdomen

without perforation of the howels leaving taken place.

A hor, aged six years, was struck on the abdonien with a houry piece of The accident made lain feel taint, and he wented several times on that and the following days. On the slay after the injury he complained much of pain in the bells, and from that time suffered from fromerat colloky pains in file ablomen, and distribou, which often obliged him to keep his bod. He was admitted into the East London Children's Hospital six months after the accident. At this time the boy was pule, but not very thin (he weighed thirty-two pounds twelve ounces). He complained of pain in the right side of the belly and over the epigastrium, and there was considerable tension of the parietes in these situations. The abdomen was enthor distancied, but was not tender. There was no fluctuation or duliness in the flanks, but much gurgling could be felt and heard on palpotion. His tengue was furred in two lateral bands. The bowels acted four times in the slay, the stools being pale, small, and solid. The boy had a pinched, distressed expression, and seemed languid and dull, but expressed himself as quite comfortable except for the occasional pains in the belle. Tiere was no albumen in his urine. The large and heart were healther, His temperature at 6 r.m. was 92.4".

A few days after the half's admission his temperature rose; he began to venit, and the bounds became much relaxed. The stools consisted of shock leaven liquid, or of flaid like pea-sony, with small hard facul masses. The veniting continued, and the helly became smollen, tynepanitic, and very leader. The child then rapidly wasted and became exceedingly prostrate. Delirium came on, and he seak at the end of a fortnight. During the land

week his temperature varied between 99° and 102°.

On examination of the body there were signs of old peritonitis, due peritohily to the accelent. In addition, much recent lymph was found coating the intestines. In the thum several of Perer's patches were found to be the sent of algorithm. The alcors were shallow, with a grayish, uneven floor and thickened edges. There were no gray granulations anywhere.

This boy's condition when he entered the hospital illustrates very well the symptons often found in cases of observation of the bowels, for there is no remon to suppose that he was then suffering from peritonitis. Abdominal pain of a colicky character going on for months, especially if combined with tension of the parietes, and a history of more or less persistent discretes, is suggestive of intestinal ulear, and the planched, distressed look of the boy's face quite cochaled the idea that these symptoms were due to my unimportant derangement, however presistent. It is an invariable rule, which should never be forgotten in clinical investigation, that in a child a largued face means serious illness. However insignificant the symptoms and signs may appear, if a child look ill the case is not one to be neglected or lightly regarded. The intestinal lesson in this hop was probably the consequence of a chronic extarth of the bowels of many mention standing; for from the time of the neglected to suffer from persistent

knowness of the bowels, with attacks of colicky pain. The return of the estural followed upon the action of an aperient which referred his bowels of a large quantity of hard feed masses, and the irritation thus excited no doubt induced the second attack of peritonitis from which he died.

If there is any reason to suspect observation of the nuccus membrane of the bowels, specients are not to be recommended. Our whole efforts about the directed to promote the healing of the observation position. Therefore, however important it may seem to return feed accumulation, we must remember that an apprient only sets up took in itation and that its action may be followed by very serious consequences.

As a rule, the lower down in the colon the elevation is seated the more numerous are the executions and the more distressing the tensorus and the pain. Still, even if an elect occupy the sigmoid flexure or rectum, there is not always distribute; indeed, sometimes the faced matter presents study only in the form of hard soybals mixed with very offensive numerouslent floot. In these cases, it harmorrhage occur, it is usually more copious, and the blook more antural in colour, then when the ulcers occupy may other portion of the bowel. Constitution is most liable to be found in colour where the lesion is scoted in the small intentine, the colon being tealthy; but even in this form of the disease, my solditional irritation which sets up enture and increases the peristaless of the larger gut may give rise to distribute. An alcer of the disease, my solditional probably excite distressing voniting and pain at an interval after food. Such a lesion in

the child has never come under my notice,

Dispress. If the symptoms of alceration are well marked, there is hetle difficulty is ascribing them to their true cause. An abdomen tall, without great distention or loss of the natural surface markings; incressed tension of the pariotes, with tendernous on deep pressure; diarrhors, with colicky pain, the stools consisting of dark, putrid-medling, watery fluid, depositing brown or yellow shreddy matter and small black blood-clots-this group of symptoms, when combined with a distressed expression of face, as very characteristic of intestinal alcoration. The chief difficulty in such a cose would be to exclude tubercular peritonitis; for this additional losion might be present without excessive temberness, without fluctuation, and without any ensous lumps being detected on palpation. The belly, hereever, would be more distended and globular; the natural markings of the surface would be absent; the temperature would probably be decidedly febrile; and in most cases, if the child were hid on his side so us to allow of the fluid accumulating in one flank, some avidence of its existence would be perseived on turning him rapidly on to his back and immediately pulpating or percussing the part which had been dependent. It is, however, fortunately, uncommon to find cases of chronic tubercular peritonitis in which the symptoms are so obsessed. Usually semi-fluctuation is readily discovered, and cassons masses, or anequal resistence of the abdominal contents, can be noticed on examination.

If the electation be accompanied by constipation or solid stools, the case may be mistaken for one of facul accomplation. The colicky pairs and small lumpy executions are very suggestive of this condition, solered if the stools are occasionally loose, the symptom is not unknown in cases of impacted rectum. A lattle reflection will, however, consider us that there is more in the case thus a leaded borrel is expalse of explaining. We find in most instances a history of previous continued diarritors; if tendentess be absent, there is still some tension of the abdominal wall; and the distressed expression of the child's face assures us of the expenses of arrious discuso. Moreover, an examination per assum detects no accumulation in the rectum, and a copiese enema, although it may remove solid.

freal lange, is no way improves the condition of the patient.

If we are satisfied as to the presence of the alceration, we have still to decide whether the lesion is of a simple sharacter, or is the consequence of a scrothlous or tubercular eacheria. The older the child, the greater the Theilipool that the alcoration is not simply catarrial. After the age of three years, the manufestations of the secondous disthesis become common; and at this age, chronic entursh of the howels selden runs a sufficiently persistent course to set up aboration unless miled by some vice of the constitution. If, however, the child have scrotalous or telegratur tendeneier a much loss prolonged irritation of the amount mentioned will give rise to essention and softening in the glandular follows. The presence of salaryed meanteric glands, chronic long disease, or other sign of the arrobitous constitution, allows us to infor that the intestinal lesion is of a semilar pathological character. The temperature is not greatly to be relied. upon in these cases; for it is not necessarily elevated in cases of scrofulous thornton, while it may be raised from accidental enuses in the simple form of the leaton. Nor is the state of nutration of much value as a guide; for this depends loss upon the nature of the ulear than upon the slegges to which materia' of the bowels may have reduced the strength, and interfered with the digestion and absorption of food. If the child show no sign of the scrofulous enchexis, if his lungs appear to be healthy, and if taberesbe perilouitis can be excluded, we may infer the alcoration to be of a sinpie character, although his general strength be poor, and his nutrition unmistakably impaired.

If the electration be tubercular from a secondary formation of the gray granulation around the elect, and in other parts, natrition is at once profoundly affected, and wasting goes on with repolity. In such a case, all the symptoms of general tuber-phoses are present, and the child often does from observable meningstis. Still, it must be confessed that cases sometimes present themselves in which all the symptoms of neste tuberculosis are noticed without a single gray granulation being discovered in the body ofter death. The case may even terminate with head symptoms indistinptionally from those of tubercular maningstis, although the interior of the aminus appears to be healthy, and the most thorough search discovers no gray tubercie in the meninges of the brain. It is difficult to explain these

raiss. Fortumbaly, they are very exceptional."

Propunic.—In a case of simple afternation from prolonged intestinal talards recovery will often take place under judicious treatment if there be as complication, and if address have not occurred. The latter symptoms, although it is far from indicating that the patient will certainly die, is yet of tarkmoundle import, as it shows a state of great weakness, and weakness.

If the alteration be expossible, the prognosis is still loss favourable; but here, if the alteration be expossible, the prognosis is still loss favourable; but here, if the strangth is not greatly reduced, and if other organs are healthy, however may take piace. Carcous calargement of the measurance glands. Assumed appear to add to the danger of the case; but if serious lung mothed is present, the concurrence of the two lesions leaves as little room for large. If secondary tuberculosis occur, with formation of the gray granulation in the neighbourhood of the above and elsewhere, death is contain.

[&]quot;A run presenting these describer phenomena recurred some time are in the Vicnea Park Harpeni, and was published by Dr. R. West, in the Lauret for September 30,1882.

Treatment.—The ulmost care is required in the treatment of these cases if the illness is to be conducted to a incountile issue. Our endeavours must be directed to quiet irritation; to persent the occurrence of fresh catarrh; to reduce perintaltic action, so that the healing of the ulcers may not be interfered with; to support the strength of the patient, and to fur-

ther ciculmisation by smitaldo medicalion.

The child should be kept in bed in a well-ventilated room, and his belly should be protected by a broad layer of cotton-wood confined by a suitable bandage. All discharges and seiled linen should be at once removed, and every means be supployed to keep the air of the room fresh and pure. The diet must be regulated so as to convey nourishment without supplying naterial for fermentation. As long as enterth persists, fermoutable food is to be avoided; and even when the diarrhou has been arrested, the especity for digesting such a diet still continues small. Milk must be positively forbidden; and starchy matters can only be taken if at all := very small quantity. An infant must be fed with weak seal or, chicken-broth and linricy-water in equal proportions; whey, plain or if the child be feeble, made with sharry (white nine whey), and cream; yelk of ogg benten up with whey or veal-broth; and Mellin's food dissolved in either broth se whey, and mixed with barley-water. The needs must be small and frequent; and it is advisable to make constant changes, so as to fornish a sufficient variety. If the purging be severe, no more than one tablespecesful, or even less, can be given at one meal; and all food must be

given cold.

After the age of eighteen months, raw mutton or beef forms a very valunble remedy. This should be prepared as directed in the treatment of chronic distribusa, and may be enten plain or diffused through broth or jelly. Uncooked ment so prepared is very nutritious and digestible; and even if not completely digested, the residue appears to be perfectly unions tating to the bowels. Still, it is well immediately before the usual to give a dose of pepsin (gr. iij.-v.) dissolved in a few drops of dilute hydrochleric acal, in order to sid the process of digestion. If the shild be between the ages of one and a half and two years, and the purging be severe, little other food besides the raw most, ment-jelly, and broth should be allowed for a few days, until the violence of the enturn is reduced. Afterwards, or in older children at first, velk of egg, well-besied cauliflower or Spared. onion proceed through a fine sieve, and thin well-toasted bread may be allowed. In some of these cases, where the power of digosting starely series reduced to a minimum, a good substitute for bread is the malted rhild's biscuit made by Moors, Hill & Sons of Bishopsonts Street. If these are objected to, a loaf may be baked expressly for the child in which a proportion of fuely-ground fresh malt is introduced one part of mall to two parts of flour. It is well, also, in addition, to give a specuful of Hoff's ex-tract of malt directly after the used. When the intestinal catarric last been arrested, milk may be returned to, but should be given contiously, In most cases, it is the card of the milk which is digested with such diffently; and I have found the pracreatised milk prepared with Benger's pracreatic solution, as directed classifier (see page 606), to be well bome when sedinary milk could not be taken. In other cases, shirined notk seems to agree better than milk from which the crown has not been removed. Whatever be the age of the child, so long as he is taking milk a careful watch must be kept upon the digestive process; and any sign of flatulence or acidity, and especially any return of the purging, should be a signal for reducing the quantity of the milk, or even for omitting it for a tips altogether from the diet. If the child is weakly, or appears to be exhunded by the purging, stimulants must be given as required. White wine whey for infants, and brandy-and-egg mixture for children of all ages.

are the most valuable.

With regard to medicines: As long as there is purging, astringents. with spinss are indicated. It is well in these cases not to rely too much uses one form of remedy, for we shall often be forced to make frequent. changes in the prescription in order to guide the disease to a favourable enling. If the stools consist of the homogeneous, pasty liquid matter which has been described, mirror of after is pre-eminently metal. Onesighth to one-lifth of a grain should be combined with a few drops of dilate situe acid, and one or two draws of landanum, in water sweetened with governme. This does can be given three times a day. If from tenesmost pain as the right iline fason, or the appearance of bright blood in the shols, there is reason to believe the large bowel to be the seat of the kesion internal administration of the drug may be supplemented by the use of the silt locally. For a shald two years of age, the lower bowel should te first cleared out by a copious injection of topal water, and afterwards ino grains of the nitrate dissolved in four ounces of water must be thrown up the bowel through a long tube. If tenesams is urgent, two drops of linksom may be added to the medicated injection; or, after the return of the nitrate, the hundarum, mixed with half an ounce of thin warm starch, may be thrown into the bowel. The estringent injection can be repeated for three or four nights in succession, and can then be given only on alternate tights, if the symptoms still persist. Instead of the silver sult, sulplate of report that a grain to the owner of waters may be used for the injection, and notion of service. This treatment by injections is useful not only by applying the astrongent directly to the affected part, but also by clearing away lardened lumps of from lmatter, which are very apt to be retained and keep up militation even when the stools generally are loose and frequent.

Another useful remerly is the extract of homotoxylon. Three to five crains may be combined with one or two drops of husbasses, and two to few drops of specuramias wine in the compound chalk maxture, and given three times in the day. A combination of the extracts of homotoxylon and cinitary (gr. iij. of each) is often found of signal efficacy if the purging a closingle; or gallic soid (gr. ij. v.), with a few drops of promote substants; or gallic soid (gr. ij. v.), with a few drops of promote substants; or gallic soid (gr. ij. v.), with a few drops of promote substants; may be used. Optims should be always added to the nonconsulation of unitary be, in order to reduce invitability of the minrous mathematics, and quiet peristaltic movement. Sometimes we find cases, which have resisted all ofter treatment, yield to bestuth given in large lass. For a child of two years old, fifteen grains of the carbonic of blanch may be given with five grains of the aromatic chalk powder, every low hours; and a lew doses of this combination is followed by really surprising improvement in many cases. If thought desirable, a drop of balances may be added to each alternate dose of this remedy, or a small

byetion of starch and opinin may be given every night.

When purping has been arrested, the healing of the alcers may be prouoted by perfect rest, and the administration of the permitrate of ison (% in-c) with landsmam (% j.-ij.) in a temperatural of water sweetened with flywine; or quinine may be given with popula and strychnia, as reconsorted during convolvences from inflammatory distribut. For a consilerable time it will be necessary to pay strict attention to the dist, and limit the quantity of furinaceous and sociarrine foods; and long after convolvences is a scabdished, the child should continue to worr a flamed bindage round the belly as a necessary part of the dress.

CHAPTER X.

INTESTINAL OBSTRUCTION (INTUSSUSCEPTION).

Occursors of the intentine in the child is rarely due to any other sums than introduced or invagination of the bowel. Although any form of mechanical obstruction met with in the adult may concernably arise in the young subject, such besiens are so-uncommon in surly life that when discovered they have been placed upon record, less for their practical metalness, than for the interest they may possess as pathological curiosities. Thus, the bowel has been known to be strangulated by peritoneal bunda or by the remniform appendix; to be obstructed by corrinounloss or lymphatic swellings; or to be narrowed by congenital strictures. The temporary impaction of focal matters which is sometimes found, is treated of chewhere (see Constipution). A description of intestinal obstruction in the child practically resolves itself, then, into a description of interemorption, and the present chapter will be confined to this embged.

Cassation — Investigation of the bowel, although an uncommon accident at any period of life, is ancer often seen in the young child than in the adult. Babies seen to be especially prome to it, for a large proportion of the cases occur during the first twelve months of life. This conquirative frequency of the lesion in infancy is attributed by itilite to the lesser connections of the execum in the iline form at this age, and also to the inperfect development of its nuncular bands, which lessens its resistance to

the penetration of the small intestine into its interior.

In infancy, interespectation consists either of an invagination of the small intestine into the larger, or of one portion of the colon into another portion. At a later period of childhood, the interespectation may involve the small intestine alone, without the larger gut being concerned in the

invagination.

Infants and children in whom this accident occurs, are usually stardy and well nourished; and the illness takes places suddenly, as a rule, without being preceded by a period of Seckeniss or a state of ill-bealth. Boys are more subject to it than girls. The causes which give rise to it are not always easy to determine. Drustic purgatives, indigestible food, violence of cough, external injury, and even rapid motion, as when a child is danced quickly up and down in his parents arms, have all been quoted as exciting causes of the lesion. It is certainly currous to find that m many of these cases the symptoms of obstruction were immediately precoiled by a fall or other accident. In a case which lately came under my own notice-an infant of ten months old-the first symptoms followed a fall from his mother's bad on to the floor. Indeed, the child, when first seen, had a severe bruise on the temple and clock, testifying to the severity of the socident. Still if causes such as these were alone capable of determining involution of the bowel, the accident would be surely name commonly met with than it is. In some recorded cases, intraspectation has been preceded by intestinal entarrie; and it is represented that any andden increase of peristoltic action may help to induce it.

Morbid Jautony —In intrasusception, one portion of the borel is forced or invaginated from above downwards into another portion intradiately continuous with it. At the point of invagination, therefore, a welling is seen which consists of three thicknesses of gut disposed one over another. Firstly, the external investing table; secondly, a postore continuous with this, which has been doubled invaries, or inverted within the first constitutes the lesion. Of these, the middle layer, which is of course received or turned inside out, has its minous cost, now on its exterior, in contact with the insecous cost of the investing portion of the got; while its peritonnal costing, now innermost, is in contact with the positonnal covence of the contained or invaginated portion of the lower.

The intraspectation is formed not only by the intestinal tube, but also by the portion of mescatery in connection with it. This being drawn in with the invaginated portion, presses the latter to one side. Consequently, the ferencest opining of the contained segment is not in the middle line, last is twisted so as to rest against a part of the investing sheath. When one started, the invagination tends to investe by prescaling section, the last seed of the outerwest by prescaling action, the

vary in degree from an extent of a few inches to several feet.

The consequences of the intusus sception are occlasion of the intestinal coul, and obstruction of the circulation in the double layer of bowel which forms the invarianted poetion. The two inner tubes become dark purple from congrestion, and swollen; and some efficient mixed with blood is poured out between the opposed mucous surfaces, and also into the caral beyond the point of obstruction. Lymph is afterwards consied, and the apposed serous surfaces become adherent. In some rare cases, the infuncation extends beyond the seat of discoun, and causes general perituitis; in others, ulceration and perforation take place in the investing shorth swing to irritation of the end of the contained portion; and this is seastings seen to protrade through the opening thus formed into the mety of the peritoneous. If the strangulation of the incognisted portion is complete, if becomes gangrenous, and, in favourable cases, may be detaried, pressured or in mass, and discharged through the sons. Should this largest, if the althesions already formed remain firm, the sheath or treating segment, being united at its free and with the part of the born! immediately about the point of intususception, still forms with it a patimons tabe, although the interpening portion has been removed. Stactimes, however, the adhesions give way, and then extraoration may take place into the peritoneum.

In infancy, it is usually the small intestine which becomes invaginated ate the colon. The end of the ilium, with the ilio-exeml valve is forced into the cacum. This, as the intrassusception increases, penetrates further and further into the colon, drawing behind it the ilium, and doubling first the mann, then the assending colon, and afterwards more and more of the larger bowel the further it extends. At last, it may reach the rectum, and he felt by a finger introduced through the man. In such a case, when the ablomen is opened, the larger bowel seems in great part to have discapposed, and a tumour is found occupying, nearly, the left side, often the line force. This is of a sinte-gray colour, is clongated in slape, and dengly to the touch. By traction, the invaginated portion can be drawn out, although it is meanly soft, and is agit to tear in the process. Before penetraling into the rolon, the ilium may or may not pass through the ultre; maralle, it does not do so, and if a portion pass between the lips of

the rains, it is seldon more than a few inchest-

Sometimes, even in infuncy, more often in older children, the interessreption occurs in the course of the small intestine, the color taking no part in the invagination. When this displacement occurs in a healthy shild, it of course gives rise to symptoms of obstruction. It may, however, take place without producing symptoms. In examining the bodies of children especially if they have shed of intestinal enterth, or of some form of brain disease, it is not uncommon to find partient of the bowd invaginated, often in several places, without any symptoms of this necident having been noticed during life. This form of interessecution usually occurs in the small intestine. It is supposed to take place insteclistely before death; for the bowel is merely invaginated, and is not swellen or our gested, or altered in appearance in any way. Moreover, it can be readily drawn out by a very slight effort.

Symptoms.—There is some variety in the symptoms, according to the age of the child and the sent of the invagination. In infants the introsucception is almost always at the expense of the iseger boxed. In other children it may be confined to the jojunous or illum, without irreduing the colon. The symptoms noticed in infants, and those prising in older

rinkless, must be therefore considered separately.

In the case of an infant the ordinary history given by the mother is that the baby was in his usual health, when sanklenly he grays a scream. furned excessively pale, and then eried violently, writhing and drawing up his legs as if in great suffering. The pain is not constant, for the child, after a time, ceases to cry, and lies back, looking pinched and pale; but in a short time the paroxysm returns, and he screams and writhes as before. When the pain first course on, the infant vomits his last and, and the veniting is usually repeated, especially if food or medicine be given to him. In most cases, an aperient is at once ordered, and is returned directly it has been swallowed. The state of the bowels is important. If they are empty below the point of obstruction, they remain obstructely confined, and the straining efforts, which are usually made, needly expel nucus and blood. If the lower bowel contains any fixed matter, this is discharged in a thin, loose state, shortly after the occurrence of the intesensusption. The stool may contain blood, and the action of the bowds is morally followed, after a short interval, by further straining and the execuation of muons and blood. At this time, the temperature is not elerated; the belly is poinless-in-lead, during the percayons of colic, gentle frictions to the bully seem to afford relief; the abdomen is neither full nor term, and between the attacks of pain, the child may be often found in his col lying upon his belily. Sometimes the secretion of mrine is greatly diminished, but this is a very variable symptom, and apparently has no reference at all to the seat of obstruction. Often, at this period, the most careful examination of the belly detects no localised swelling; but after a time, if the abdomen be carefully palpated during an interval of rest from pain, a distinct swelling may be perhaps detected by the fragers present deeply into the left time tosse. There may be some tenderness at this point if some hours have elapsed since the occurrence of the accident. Later, the mose can often be reached by the farger introduced into the recting, for its tendency is to travel further and further down the bowel The child sleeps but little after the invagination has occurred. If, at the first, he sleeps between the attacks of pain, he soon ceases to do so, and remains wakeful and restless, constantly whining and crying until extantion The temperature varies. Sometimes it is little aftered from the normal level. In other cases, it begins to rise after a few hours, and may reach 102" or 103". Directly symptoms of collapse are noticed, the temperature usually falls below the level of health.

The course of the illness is apt to vary according to the degree of strangulation of the inveginated segment, and the more or less completetest of the obstruction to the passage of the contents of the bowel. In rare man, the passage is not completely occluded, so that feeal matter can will make its way, although, of course, in small quantity, through the surrow channel. The constitution is then not obstitude, but the stools are smally, and consist more of murns and bloody flaid than of the ordinary

The symptoms continue without improvement. The pains return at intervals. The child, in some cases, turns away from his bottle; in others, he savks greedily to assume his therst; but, whother he availors willingly or not the effect is the same, and he usually comits almost immediately. If he count at other times, the ejected fluids consist of hile-stained macus, and very rarely of facial matter. The face gets pale and more haggard; the symbols close incompletely, and the sycholis are sunken. Occasionally to shains, but only blood and occurs escape from the rectum. His belly is often tender over the seat of the turnour, and may become failer and more tympunitic, with some tension of the purietes. Sometimes the

ephineter is relaxed and open.

cognitionate of an exacuation.

The symptoms of collapse come on early if the obstruction of the bowel is complete, and usually, on the third day, the child is found in the state described. Unless general peritonitis occur, there is solden much pyrexia, indeed, the child, as a rule, feels cold and damp; and even if the internal temperature is higher than natural, the extremation feel cold. In this state, he remains until he dies. A convulsive science may precede that, and sometimes convulsions occur in the currse of the illness, and are repeated several times. Before death, the imaginated mass may be perhaps sen to protraile for an inch or two outside the arms, as a dark-coloured, clougated lamp. This, however, is not common. When the strongulation is complete, the discuss sellom lasts langue than a week, and death often cours in these or four days. If the obstruction is not complete, the progenous of the case is longer; scanty loose motions may be passed at intervals, and the child often languages for a fortnight or more.

If, by any means, the invaginated portion of the bowel can be returned, the veniting censes; the bowels discharge a copious, semi-fluid, offensive stool and the child sleeps. On waking, he takes the bottle or the breast, and seems cheerful and contented, although necessarily languid and

double.

Is o'der children, the ayungtoms correspond, in the main, with those already described, but vertain differences are noticed. Thus the distention of the belly is usually greater after the age of infancy, and comes on earlier. It is sometimes extreme, and the coils of dilated intestine can be mula out through the abdominal parietes. Also, semiting is generally persistent and is apt soon to be ferribut. The child will take no food, but is expensively thirsty. The discharge of Island from the arms notice less frequently the more advanced the age of the child. If the invagingtion occase the large intestine, the strangulated portion of the bound is approached near to the outlet, and hamorrhaps from the ruptured vessels is likely to take place. If, however, the industriception is higher up, and accomfined to the small intestine without implication of the color, no liversstrings at all may be noticed. There is then, in most cases, electronic constipation. When the stage of collapse comes on, the tongue becomes dry, said is covered with a Leown fur; the belly is tympunitie; the eyes are emben, and the face of the child is ghastly and douth-like.

If separation and elimination of the gangrenous portion of the bowel takes place, this favourable change is usually soticed in the course of the second week. In these footunate cases, the dark-coloured gangrenous segment of the intestinal take is passed with much straining, and often a ganutity of dark, offensive feenlent matter comes away with it. The amount of this varies, and is often very considerable. The discharge is followed by symptoms of great relief. The child mently falls into a profound sleep from which he wakes greatly refreshed. His thirst is eliminated, his appoints begins to return, and his whole aspect betokens great improvement. The gangrenous portion may not be expelled in one piece, but sometimes comes away in patches and strells, mixed with feul-anelling forces and blood. After the separation and discharge of the slength, recovery usually follows with great rapidity.

In the fatal cases, death results more often from collapse than from peritonitis. The child becomes weaker and weaker, and dies from authoria.

Sometimes death is preceded by a consulsive seizure.

The above is the course of the disease in infants and older children.

Of the symptoms, the andden occurrence of severe abdominal pain, the
comiting the constipution, the discharge of blood from the bowel, and the
discovery of a swelling by palpution of the helly or exploration per mars,
are the most characteristic.

The pain is of an excruriating character, as is shown by the child's agonising cries, his restless, jerking movements, and the death-like paller which spreads over his face. In a case recorded by Dr. Wilks, the infant actually fainted from the intensity of his suffering. The pain course on in pureayens, but these do not occur at regular intervals. Often, after the first access, the colic suddenly ceases, and the child appears to be easy. He may remain free from pain, showing no sign of illness, for some hours, but accour or later the pureayens return. This is most often the case with infants.

Visiniting is always present, and may vary from more regargitation to violent retching. It is often accompanied by kiewough. The venited natters consist of fixed and medicine, or, if nothing has been taken of more and bile. Occasionally, blood is thrown up from the stomach. Mr. Maricol has recorded the case of a male infant, aged an months in whom this symptom was noted before death. The introduception had occurred in the

usual situation for this age.

Constipation is not a constant symptom. If the bowel below the point of electraction contains from matter, this is invariably expelled early. There is then no alvine discharge for the remainder of the illness. In less common cases a certain amount of discribos may be present, if the struggilation of the bowel is not complete; for the swelling of the invaginated segment becomes reduced after a few days, and the calibre of the caral

may be partially restored.

A discharge of blood and muens is one of the most constant symptems. The amount varies. In some cases, it may be scanty, nothing more than a stain of blood being seen upon the disper when the uspkin is changed. In other cases, the quantity may reach several causes. It appears saft. It may be seen at the time of the first effort of voniting, and as seldem delayed longer than twelve hours. In infants, this symptom is almost invariably present, and may be taken to indicate a degree of constriction of the bowel stopping short of actual strangulation and complete arrest of circulation. In other children, as has been suit, it may be wanting

A distinct swelling in the course of the bound when discovered is a valuable disquestic sign; but often it is not present. The tumour prestally lies in the left slist region, and gives a fam, doughy sensation to the finger. It is movable, and suries from a valuat to a tools egg in size, or may seen be larger. When detectable by pulpation of the belly, the tonear can often be reached by the finger introduced into the rectum; especially if at the same time pressure is made upon the invaginated mass by the other hand placed upon the abdomen. A rounded imap, feeling very much like the cervix utest in a suginal examination, may then be felt by the point of the finger. Seemstimes the mass can be seen to protrude beyond the same, but this is exceptional. Out of forty-nine cases collected by Dr. Lawis Smith, the protrusion occurred only in six.

Tenesmus is usually present, and is often distressing. It may cease as

the child's strength becomes reduced.

The amount of feror varies. At first, the temperature is normal, but as inflammation occurs in the intrasmospition, the bodily heat increases, altimagic it is early successive. The symptom is said to be less marked in infants than in other children. The pulse, after the first few skys, is very model, and as the strength declines, becomes excessively frequent and feedback.

The duration of the illness varies, as lies been mid, according to the completeness of the strangulation of the bowel, and also according to the age and strength of the child. In infants, it rarely hats longer than a week, and death often takes place as early as the fourth or liftle day. In older children, the course of the discase may be equally rapid; but often it is more protracted, and cases have been recorded in which the lesion has become chronic, lasting several months. Separation and elimination of the gasgemous portion is never seen in infancy, and is mre even in more alranced childhood.

Dispress - When a child who has been previously in good health, or has suffered merely from boseness of the bowels, is suddenly seized with volent paroxysamil colic and repeated vomiting, followed immediately, or after a few looms, by examinations consisting of non-facul names and blood. discharged with great straining, we may conclude that he is suffering from seclasion of the bowels, due, in all probability, to infusesaception. The discovery of an onal timeson, in the left sale of the belly, will confirm us in wir opinion, and if we can succeed in touching the mass, by the finger inbrokered into the rectum, the sign is a conclusive one. The conjunction of all the above symptoms is of importance, and the absence of any one of then is not to be disregarded. Tune, if we are called to a child who has been taken steldenly with pain in the belly, and comiting, and whose bowthe are obstinately confined, we must not conclude too hastily that an interexception has occurred. The pain may be extreme and percentual; the tomaing frequent and distressing; and the constitution may have resisted specients and enemats, without obstruction of the bowds in any form being present. Peritoritis, which paralyses the bowel, and induces comiting by redex disturbance, may preshoe just such symptoms. On the other attel a passage from the howels may take place although introsucception his setually occurred. The appearance of one lower heral stool, after the regioning of the illness, is common in intrastanception, for the contents of the color below the point of obstruction are usually expelled shortly after the womers not of the inengination. If, however, the bowels continue loose, and focal matter is afterwards exacented, whether by injection or other-Vise, the symptom is not in favour of intusous eption; for, even if the clantel become pervious later, after aveiling has partially subsided, it is easely tree during the first two or three days of the illness. In such a case we

should he situte to ascribe the symptoms to invagination of the bowel unless the other evidence in its favour points irresistinly to such a conclusion.

Again, severe colic in a young liaby is often accompanied by alarming symptoms, in which all the signs of the most violent pass may be followed by great presentation. In the attack, the child atters pareing screens, and writhes his body exactly as he does in intrassucception; indeed, in almost all cases of invagination of the bowel, we generally find that an aperiod has been ordered, under the impression that the spanns of pain are the consequence of irritation of the bowels by undigested food, or flatulent distention. In every case, therefore, where intrassucception is possible, we must weigh the swidence very carefully, as the recovery of the child may depend apon early and accurate diagnosis of his niness. In addition to simple colic and peritonais, intensacception may be confounded with dysentery, with impaction of hardened faced masses, and with intestinal harmerings from other causes.

In sample color the pain, although often excessively severe, is not peroxysmal, with complete remissions, and usually ceases with the expulsion downwards of a quantity of gas. The skin is often but, and the bully hard and swotlen. There is no vomiting or beneamas, or discharge of bloody ances from the lowels. It is very important to attend to these points, for the adminitration of castor-oil or other specient, which quickly comes an ordinary colic, cannot but be injurious in a case of intusensception, increasing the pena-

taltic action of the bowels, and aggravating the invagination.

Between personalis and artifal obstruction of the bowels, the diagnosis is often very difficult. The form of peritonitis which is most spt to sinulate intussisception, in that in which inflammation occurs enddenly as a consequence of electation and perforation of the remiform appendix, with extravasation into the peritoncal cavity. In these cases, symptoms similar to those of obstruction may come on quite suddenly, and he very sevens. But in peritonitis, the temperature is always elevated from the first; the abdominal parietes are distended and tense, and pressure in the right ring form in painful. In introducestion there is no provide at the first; the abdominal wall is lax and undistended; there is frequent tensorm, and, after a few hours, blood and muenware discharged from the bowel. This last symptom, added to the signs of intestinal occlusion, as pathogusmonic. The michabe is most likely to be made when the symptoms scent in a child after the age of infancy, and hamorrhage is not present, or is alow to appear. Still, even in these cases, the absence of favor, the latness of the purietes, and the tenesmus should raise strong enspicious of the real rature of the disease. In all cases of doubt, a careful examination of the belly, while the child is under the full influence of an atomthetic, will usually enable us to detect the presence of a tumour in the abdomen if invagination has occurred.

It is possible to mistake intresusception for dyscatory, for the mistake has actually been made. In the latter disease, the dejections are often small, and consist of thick muous, mixed more or less infimately with blood. They are discharged with great straining and pain. Even in acreso cuturels of the lower bouch, which is often improperly called "dyssutery," much muous, and often streaks or spots of blood, can be observed. But these symptoms alone are far from being characteristic of intestinal invagination. We miss the always ouset, the frequent comiting, and the lax, undistended conditioned the belly. Moreover, the whole course of the two discusses is different, and true dysentery is usually an epidemic makely

In cases of impaction of focul matter-au accident which constitutes a

scal perlusion of the lowel—the symptoms of invagination may be closely simulated. Vocating, colicky pain, tensors, and constitution inva, all be present, and on examination of the belly, a first tensour may be detected through the abdominal parieties. But in freed accumulation, there is nonally a history of hard and scartly stools for a considerable period before the attack; the consisting is much less severe, there is no bloody mucus evaruated from the bowds, and the tensors is more superficial, does not shift its place, and can be indented by firm pressure with the fingure. If this condition be suspected, a large purgative enema will cause the tensour and consequent symptoms to disappear.

Sometimes, in intraspreciation, the amount of blood discharged from the bowel is very copious. Still, the other symptoms of integrination are present, and it is only necessary to be aware that hamourings may be occasionally profess, to prevent this fact from casting any doubt upon the

correctness of the diagnosis.

If attention be paid to the symptoms which have been pointed out as characteristic of intussusception, we shall be able, in most cases, to arrive at a correct conclusion. An examination per room should never be neglected; nor, in a doubtful case, should we omit to inspect the realizing suuations of rupture, for although strangulated berain is rare in young

subjects, it does, occasionally, occur,

Proposes.—When we have satisfied correless of the presence of intrasusception, the prognosis is excessively grave. In the young leaby, in
spite of a few recorded cases of apoutaneous reduction of the invaginated
parties of the howel, and of others in which remedial measures promptly
applied proved successful, any measures we may resort to must be undertaken with serious forebodings. The danger is in direct proportion to
the urgency of the symptoms. If the neutroness of the case indicates tightness of constriction, the prognosis is most serious, whatever measures are
slopted, and however quickly assistance is rendered. In almost all cases
of successful reduction by taxis, inflation, or injection, the symptoms have
not been very seriers. To be successful, treatment must be early; but
delay as less fatal if the constriction be only moderate, than when strangulation is complete. If the infant is seen after the end of the third day,
and acute symptoms have undergone no alleristion, a fatal issue to the
illness can hardly be doubted.

In older children, whose superior strength smalles them to resist for a larger period the prostrating effects of the obstruction, recovery by sloughing and discharge of the invaginated segment is possible, and may even take pince when the child is an enfectus, and after all hope has been abandoned; out this is a result which in any individual case we can never dare to antispate. Certainly, there are no indications by which so favourable an issue can be forested. Even if the evacuation of the slough by stool shows that timination has actually been accomplished, we must still not be heaty in desiring the danger at an smal; for the greatest care will yet be required during the period of convoluncence to prevent the newly-formed adhesions

from being injured or detached.

Treatment.—Accuracy of diagnosis, and especially early recognition of the nature of the complaint, are of great importance in this discoss. If the real came of the complaint and colle are discovered at the beginning, remedial necessary may be applied with greater hope of success. As it is, medical abite is seldom sought until the bowel has been irritated by one or successes of specient medicine, to the serious aggression of the patient's condition and the lessening of his chances of recovery. The only admissible remedy is opium. This should be given at once, and repeated as often as is necessary to built the pain and keep the shift under the influence of the narestic. It is test given by subsutaneous injection, and may be negfully combined with stropine. It is well to begin with small quantities, although it will be generally found that the system, even in infrarcy, is singularly tolerant of the drug. For a child of twelve months oid, one-twentieth of a grain of morphis and a sixth of a grain of stropine may be used every half-bour antii some sensible effect is produced upon the symptoms. This not only relieves the suffering of the patient, but also tends to prevent any increase in the invagination and to check the vomiting.

If the case is seen sufficiently early, the question of endoavouring to reduce the invagination by mechanical means must be considered. Mechansent interference is only allowable during the first few days of the illness, before explation of lymph has esused adhesion between the serous surfaces; and will be useless if great tendersess on pressure of the invarianted mass indicates the presence of inflammation. The means amployed may be taxis, insuffiction of air, or the injection of water. Before proceeding to may of these measures, the child, ruless a young haby, should be placed rarder the full influence of an aniesthetic. Taxis consists in kneading and otherwise manipulating the abdomen with the hand. This method is generally employed in conjunction with either of the others. The child is laid upon his back with the nates mised so that the body is inclined at an angle of 45 degrees. A large quantity of topol water is then injected very slowly into the bowel by a Davidson's syringe capped with a long tube. Every now and again the abdomen must be kneaded with the hand so as to work the finid along the bownl upwards towards the obstruction, and this process of taxis may be continued for asceral adaptes. As much fluid must be used as the bowel can be made to contain. The best proof that reduction has been effected is sleep. As a rule, directly the child's more pressing symptoms are relieved, he sleeps at once. The return of the invaginated hovel is also sometimes marked by a discharge of blood and mucus, followed by a copusus, offensive, semi-find whool.

Insufficient of air is best suited to cases where the intrasproception has descended into the rectum and an ensum returns at once. The air may be supplied by a common believe, to the needs of which a moutching take has been attacked, terminating in a long gun clustic tube. Some list must be unapped rough the base of this tube to enable it to fit closely within the splineter. Air must be injected slowly, and at times the belly should be anangulated as in the former case. The process should be continued until the large bowel is thoroughly distended with air, if this prove possible. In a favourable case, the mass will be felt to recode from the left iline region, and then pass altogether from the reach of the finger. If this happen, we

may have great hopes of having achieved our object.

These measures can only have a chance of success during the first three days. Certainly, after the fourth we can do nothing but harm by distend-

ing the bowel with either air or water.

In addition to the above methods, attempts have been made to replace the bowel by a long sound passed into the rectum, and have occusionally successful. This method is, of course, only applicable to cases where the avagingtion is within easy reach of the outlet. An asophageal boughs with a sponge fastened to its end forms a useful instrument for this purpose, If the above measures prove ineffectual, it becomes a question whether a surgical operation should be reserted to or whether we should trust namely to complete rest and opium.

The operation of opening the abdomen and reducing the invagination with the fargers has been happily accomplished in some cases, and may offer a chance of success when other means have failed. Our decision as to its drambility will depend upon the opinion we have formed with regard to the tightness of constriction of the invagnated gut. As Mr Hatchinson his pointed out, the imprisoned portion of the bowel may be tightly strangulated, or merely irreducible, with comparatively little constriction. In the ferner case, the course of the disease is very rapid, and the symptoms are severe; gangrene quickly supervenes, and death is speedy. In the latter, where the channel often remains pervious, although much narrowed the course is more chronic, and the symptoms are less pressing. It is in these glosogy cases that the operation is especially likely to be successful. Untermitaly, the difficulty of judging of the degree of tightness of the constriction is very great. The sevenity of the symptoms is not always, in children a trustworthy guide. Much depends in such a case upon the nervous inpre-sibility of the particular patient; for a degree of strangulation which in one child will produce violent vomiting and early prostration, will, in another, be attended by much less serious and urgent symptoms. In young babies, unless the operation be performed within the first three days, and before the occurrence of collapse, we can have little hope of its success; but as, in such cases, the death of the child, if left alone, is certain, the operation is surely a permassible one. In other children, I am strongly of opinion that it should not be performed if, from violence of comiting, severity of the general distress, and early occurrence of greatration, we have reason to believe the strangulation of the boxel to be complete. The gut would probably he found either gangrenous or adherent. In such cases there is always the had chance of alonghing and elimination, and this the operation would take away. On the other hand, if the general symptoms are comparatively mild, and repetially if the intestinal channel is not completely occluded, the operation is distinctly called for after failure of other means of reduction.

In the early period of the illness, vomiting is often encouraged by repeated and immercessary feeding of the child. At this time, it is best to give no food at all, and only to allow an occasional spoonful of barley-scater to savinge the thirst. If ald anough, the child may be allowed to suck lungs of see. If the counting results, some simple food—wilk and barley-water for a buby, given cold with a tempoon; and for an obler child, strong Isoftes, ensures of most, and milk, also in small quantities at a time—may be allowed. When the strength begun to fail, brandy-and-egg mixture can be

green.

If elimination of the gangrenous segment take place, the utmost care should be observed that for months afterwards the child out sparingly of farmecous and fermentable articles of food, so as to avoid injuring the joing adhesion by flatulent distention. Pointors, pens, and broad-beaus should be forbidden. Farinaccous publings and sweets should be greatly restricted in quantity. In fact, the child should be dieted much as if he had

lately passed through an attack of enteric fever.

CHAPTER XL

TYPRLITIS AND PERITYPHLITIS.

Tur creeum and its appendix are liable to discuss on account of the tendency to retention of foreign bodies and irritating substances in this part of the alimentary canal. In perityphilits, the inflammatory process begins almost ameriably in the escena, and spreads thence to the loose arcolar tisene around it. In most cases, it is the consequence of siccration and perforation of the wall of the creeum or vermiform appendix.

Consulton, etc.—The form of perityphilitis which is due to alternation of the vermiform process seems to occur more often in early hie than in later years. Therefore, childhood may be considered to be one of its predisposing causes. It has been noticed in an infant no more than seven notaths old; but this is very exceptional. Usually, the child is between four and twelve years of age. It is said to be more common in boys than in girls

The determining came of typiditis is, no doubt, in most cases, constituting tion, with retention in the caseum of hardened fiscal matter, constituting what Rekitansky named "typiditis stereoralis." It has however, been also attributed to cold and external injury. I have known it to occur during

convolescence from typhoid fewer.

Perityphlitis is commonly due to the passage into the appendix of a life tle concretion which is retained and sets up inflammation and alcoration. Hardened intestinal concretions are often described from their appearance as cherrys or date-stones, but on examination are almost invariably bound to consist of the earthy phosphates combined with inspisated mucus and ordinary focal matter. They may be formed around small foreign bodies as a shot, a pin, or a spirala of hone. In size, they may resemble a pen or a date-stone. They have a smooth, shining, waxy-looking surface of a gravish or brownish colour. Their consistence is hard, and their structure often Istalnated. Sir William Jenner is of opinion that the retention of these calcult is due in many cases to malposition of the appendix. This process, swing to its length and the attachment of its mescatery, may be beat at an angle posterd of being directed upwards and inwards), so that hurdened particles can slip readily into it but are presented from returning. According to Dr. Sands, the appendix, before destruction of its coats, contracts adbesions to the peritoreum lining the aline fessa; so that when perforation. occurs, the fecul matters instead of entering the serous enerty, gradually pass into the loose connective frome which less outside the peritoneum.

In some cases, a typhoid or tubercular ulear may lead to destruction of the wall of the caseum, or the part of the intestine immediately adjoining, and be a cause of extravasation. When the escape of feeal matter takes place into the loose tissue behind the escana, it acts up inflammation and abscess. An abscess once formed rapidly culturges, and tends to point somewhere in the ilias region, or in the groin just above Poupart's Igames's. The direction in which the past travels, ruries according to the exact seat of the purulent collection. Thus it may pass along the inguisal const into the acrotum, or along the passa and tiles muscles to the upper part of the high. Sometimes at dips into the policis and opens into the rectum. In other cases, if the ulcorated opening remain patent, the pus may pass through it into the execum; but often often a time the opening closes up no as to shut off all communication with the abscess.

Office, general peritoratis, more or less severe, accompanies the perityphilis, from extension of the inflammation. It, instead of opening into the sub-arrows tissue, the rupture takes place from the board or appendix

directly into the peritoneal cavity, peritonitis is set up at once.

Samples v.—An attack of typhicis begins suddenly with pain localised in the right line fosce; the chief venits and the bowels are confined. The pain is constant, and apparently severe. It is increased by pressure ever the essent, by cough, or by efforts to vessit. The matters ejected consist of watery and bilious fluids, and the reteining may be severe and distressing. At the same time, there is fever which varies according to the nervous impressibility of the child. Dandle, the thermometer marks 101° or 102°. The expression of the face is murious and distressed. On pulpation of the belly, we notice a firm mass in the situation of the execum, and gentle percussion at this spot elicits a dull sound. On account of the traderness, it is difficult to make a satisfactory examination of the disc region, for the least teach courses severe suffering. The child lies on his back, melining to the sight side; he flease his thigh, and cries bitterly if my attempt is made to straight in the link. Sometimes a distinct swelling may be noticed at the sent of term.

These attacks are often spoken of as "colic" or "inflammation of the kowels;" and after recovery, a tendency appears to be left to a recurrence of the illns so, for it is not uncommon to hear that this is not the first time that the child has suffered from similar symptoms. As a rule, if the lesion remain simple, and be not complicated with alternation of the wall of the howel, its course is rapid; and in a few days, under suitable treatment, the pain and tendences are no longer complained of, and the child is convolucional in exceptional cases, the disease lasts into the second week, and the tender-

new and swelling only slowly subside.

Pertagnitive may be preceded by the symptoms described above as being therefore the of inflammation of the exercise; but more often—probably on amount of the more limited area occupied by the morbid process—the stage

of alcorative destruction passes almost unperceived.

In the first case, the comiting and constitution cease, and the more acuto pain gives place to a dull aching, or even altogether subsides. Still, there is tenderness, and the aveiling does not entirely shouppear. The child sloes set seem well. His has returns an expression of distress, and he is dull and

laffers and enwilling to play about.

If the perforation occur without having been preceded by the symptoms of typiditis, there is often nothing but a sense of dull aching or disconfort in the right illus region, with occasional pussing attacks of more acute point. On these occasions, there is somiting of short duration, and the child looks illust is feverish. This passes off in the course of a few hours, and the child symptoms as before—not quite well, but suffering from ill-befored symptoms to which little importance is attached. He is possish and fretful, exprictions in his appetite, subject to uthoris of discretion alternating with condipation, and often thirsty at night, with some increase in his temperature.

When perforation occurs, if extravasation take place into the perito-

neam, all the signs and symptoms of a localised peritonitis are at once observed. There is pain, suching, and bunderness in the right side of the belly, with variating, consequence, high fever, a fairest tongue, and a pinched, linguist here. The child lies on his back with his thighs flexed, and dreads the least touch. The inflammation may become general and the child quickly die with all the symptoms observed described (see Acute Peritonitie). If it remain limited, he may perhaps recover after a

longer or shorter illness.

When the perforation takes piace posteriorly, so that the extraorsated matters pass backwards into the loose connective taken behind the
excum, the symptoms are less severe. In such mass, the child at first may
continue to be about. He generally looks ill, has a more or loss febrile
temperature, a experience appetite, and is listless and languid. He may
suffer from pain in the line region—not very severe, but constant and
wearing; or may be attacked by occasional pains of a colicity character,
which are often carried by nowment. At hight, the child in restless,
constantly altering his position, and sometimes crying out. At this period,
the bowds are usually confined. On examination in the early stage, before
any pointing of the abscess has occurred, there will often be noticed a fulness in the right illus fosse, and this part is tender when pressed upon.

In most cases, the child, if he continue able to leave his bed, is noticed to wilk with a limp. Soon, however, he causes to be able to wilk at all, and lies in bed on his back with his right thigh partially fiesed. If he be assisted to stand, he is seen to rest his whole weight on the belt limb, and to keep his right limb partially bent both at the hip and knee, and rotated outwards. With these symptoms, especially if there he may history of a blow or fall, discuss of the hip-point may be suspected. This opinion is often strengthened by the child's complaining of pain in the knee as well as in the grain, and by the suffering caused by any attempt at extension of the hip. If the tenderness is great, my rough manipulation of the limb, as in rotating the head of the thigh-bone, or communicating any concession to the hip by striking the knee, may be a cause of pain in the origin.

As the disease progresses and suppumition occurs, the paller and distremed expression of the patient are very noticeable. His pyroxis becomes more marked, and the evening rise is followed by depression, with sensing in the morning. He lesses flesh fast, and his tongue becomes dry and brown. The constitution now usually gives place to district, which may be copious; and the pulse is very rapid and feeble. Great pain is complained of in the bully which may be distended, or over tympomitic; and the swelling in the right like fosse increases in size, but becomes softer. Sometimes severe pains are complained of in the right knee and ankle, and orders of the limb may occur from interference with the venues

egreulation.

If the course of the pus be downwards to the privis, so as to show no signs of pointing externally, these symptoms, coupled with the resemblance of the local condition to hip discuse, may suggest a secondary tuberculosis. But a careful examination of the belly will usually detect considerable fulness and tension in the situation of the excum. If the pus discharge itself into the rectam or bowel, great relief is experienced, and the local swelling and tenderness undergo considerable diminution. Often, the course of the pus is towards the surface in the neighbourhood of the abscess. The skin then becomes darkish red or purple, and swellen. It gives a deciply sensation to the touch, and, on pressure, we may notice a slight emphysematous crepitation. An incision into the softened akin

allows the escape of brownish, offensive pus and bul-smelling gas.

These cases generally end fatally. If peritonitis occur, either from frect repture or extension of the inflammation death usually ensues in a day or two. If a feeal fistalla remain open, life may be preserved for a considerable time—often for years. In most cases, unless the absence have pointed early, the child is so nuclear reduced by pain and beetle fever that he does not long survive the opening of the absence.

A little girl, aged thirteen years, had an attack of typhoid fever when eight years old. After that time she was subject to occasional attacks of "cole" and remitting. Early in December she was ill with what was called "inflammation of the bowels with colic," but recovered for the time. In the sublic of February her bowels became very much confined, and after four days construction, she had focul vomiting. An injection was

given, and a large amount of feeal matter was brought away.

When admitted into the hospital on Peirsmry 21st, the child looked ill, and was very pale. The belly was distended and tymputatic, with some uniform tension of the purietes, but no tenderness or fluctuation. She complained of slight colicity pain at times. Her tongue was covered with brownish far, and was inclined to be dry. There was no sickness. The bornis had been confined since the injection two days before. The temperature at 6 s.m. was 93.4°.

The bowels were unloaded by repeated doses of an aperion saline.

Abstracts small quantities of hardsman were given to rehere the colicky
mins which still returned at intercals; and the child was kept quiet in
bed, with hot applications to her belly. After this, the bowels continued

to art twice a day, and the stools were normal.

On March 3d it was noted: "Face pale; expression distressed; abdomen not full or tender. The temperature since admission has varied, sometimes reaching 1011." A week afterwards the child complained of more pair in the belly, but this part was not swellen or tender. The boxels were a little relaxed. The child began new to less flesh fast. She continued pale and very languard-boking; but although she complained of occasional pairs in the belly, there was no tendencess or swelling, and she near remitted. The distribute, however, continued. On March 14th, she began to localise the abdominal pairs in the right side just over the situation of the quadratus lumborum. The abdomen was natural in appearance, and not tender. The boxels were still lesses, and the stoods liquid and homogeneous, without bised or abrealdy matter.

After a few slops, a fluctuating tender aveiling appeared just below the ribuou the right side, and in front of the mass of the quadratus lumborum. This graw larger, and there was much subcutaneous ordern around the swelling. The child looked ill, and wasted rapidly. Her temperature was between 100° and 101°. The swelling was opened by the aspirator, and an ounce of brownish, fetid pur was removed. The child, however, suck and

ded two-days afterwards.

On examination of the body, a large aboves was found at the back of the crowns, containing much parulant brown matter. The illum just accrethe illo-creal rates was distended, and an ulcerous opening was found in the wall just above its junction with the crowns. A probe could be passed through this opening into the abovess. There was, besides, some slight but general peritonitis. The liver was fatty, and both it and the spices were alberent to the displacages. Many of the mescateric glands were enlarged.

This case of perityphlitis, although really the consequence of ulceration

of the small based and not of the coronn, illustrates very well the ordinary history and symptoms of the disease. The early attacks of colle, accompanied by comining, were no doubt owing to the occasional occurrence of inflammation in this past of the intestinal tube; but the alternitive process probably dated only from the illness from which the child had suffered in the previous December. This was probably a more severe attack of localtest extentia. The treatment pursued in this case is not to be recommended for inectation. Repeated aperients under such circumstance as must have existed when the child came under observation, could only be sujurious. It would have been more judicious to have left the bowds alone,

or to have administered a simple enema. Cases of nicerative perforation of the vertaiform appendix require special mention. This accident is, as has been said, more common in early life. than after adult age has been reached. Often the initial stage of the disease has excited no notice, and the first symptoms that arise are due to the extravisation of the contents of the banel into the peritonems. In most cases, all the symptoms of acute peritonitis ensur, and the child rapidly dies. The consequences of the extravasation are not, however, always so easy of recognition. In the chapter on Acute Peritonitis, mention is made of the organizational intency of the abluminal symptoms in cases where the peritoneum is inflamed. This is sometimes the case when the inflamms. tion is set up by nutters extravasated from the bowel; and we may find, as a result of perforation of the appendix, merely pain, vomiting, constinution, and some fever-symptoms which are not characteristic of peritoritis, but tend rather to suggest obstruction of the hourd. In fact, not once, but many times, such cases have been treated for obstruction, even to the extent of actual surgical interference. The obstinacy of the constitution, the persistency of the remitting, and the colicky character of the pain, make the re-emblance currously close. Often, indeed, very careful commission is required to detect the real nature of the attack. It is of extreme importance to remomber that traumatic peritonitis in the child may be ushered in by such symptoms; and in every case of supposed obstruction of the intesting we should search carefully for some other cause for the illness.

Sometimes, on inquary we find that on previous eccusions the child had complained of slight abdominal pain, lasting for twenty-door bears, or perhaps two days, with tendermose in the excell region and a single effort of voniting. These passing attacks may be necompaned by flatulence, constipation, or distribute, and a feeling of distention of the belly. They are due, no doubt, as Dr. With has pointed out, to alcernation of the sermi-form appendix, with commencing adhesive peritonities. After perfecution has occurred, the local symptoms may remain limited to the discretion, or may spread to the whole abdomer. In the first case, if the discret by recognized and properly treated, the child may perhaps recover; in the accord-case, he usually disc. Bets may occur before death.

Disposes.—Typhists is accompanied by such characteristic symptoms that its detection is not a coatter of difficulty. A sudden attack of abdomtral pain and benderness referred to the region of the right like food, accompanied by votating, constipation, a pinched, anxious expression, and some fever, at once draws attention to the helly. On examination, the presence of an intensely tender excelling in the situation of the executs, logather with the drawing up of the thigh on the affected side, enflictently

together with the nature of the illness. If the occurrence of counting and obstitute constitution, combined with a localised swelling and severe abdomized pain, should suggest interesception, we may persember that in the latter discuss tenderniess and signs of local peritoritis are not early symptoms; that the tumour, if felt, is commonly detected on the left side of the abdomen; and that violent straining, with the passage of bloody

must is a very constant and prominent symptom.

If, after the signs of general constitutional disturbance have subsided, the local symptoms do not disappear, but more or less tenderness, pain, and seeding pursist; or if, after disappearing, the acute symptoms exturn after only a short interval, and this recurrence happens several times, in either case we have reason to fear that the inflammatory process is going on to elevation. The occurrence of postonitis at this time will confirm our apprelensions, and indicate extratastion into the cavity of the peritoneur. If, however, the wall be perforated posteriorly, and an abscess

form belief the secons, the symptoms are much less striking.

If the patient be not confined to his bed, he often complains of tenderness in the right groun, and halts upon the right log. The case is then distinguished from hip disease by noticing that although the child keeps the thigh partially flexed, and is greatly distressed when any attempt is made at passive extension, the head of the femur may be rotated readily and without pain, if it be done with care; and that pressure upon the hipwill on or behind the trochanter, causes no discondart if the patient's whole body be not jobed at the same time. Often, the child, while lying on his back, will readily fice the thigh, and perform the movements of ablaction and adduction. It is only extension which appears to be inpossible, and any attempt to straighten the limb courses severe pain. It will be remarked, too, that while the history indicates shortness and scaleness in the illness, the symptoms, if they could be referred to the hip joint, would suggest disease of considerable duration. Lastly, wasting of the muscles of the thigh, which occurs early in scute hip-disease, is absent; the gintest muscles on the affected side are not flattened, nor is the fool of the buttock lowered; the fold in the group below Poupart's ligament is not obliterated; and distinct swelling and tenderness can be detected in the right disar boson.

Directly signs of pointing are noticed, any remaining obscurity in the

rase mirst disappear.

Eleastion and perforation of the sermiform process are very difficult terecognise with certainty, as the first symptoms noticed are often those the to the extensional into the peritonial civity. Severe personalise to the extensional into the peritonial civity. Severe personalise roung on suddenly, especially if the pain and tendemose can be acceptanted to have started from the right line region, is very suspicious of this accident. Essential peritonials comes on gradually, and the ordinary laws of peritonials from perforation are preceded by some severe acuted flasse. It is important to bear in mind that the phenomena resulting from perforation of the excal appendix may be far from characteristic of industration of the peritoneum; and in every case where symptoms are positing to sudden obstruction of the bowels (pain, counting, and conceiption) accompanied by fever, we should carefully exclude this and other results causes of such symptoms before committing surselves to the dagment of intestinal occlusion.

Preparation occur, and extravasation take place into the perioneum, resovery rarely follows. If a retro-peritorcal absence result from the perferation, the proposals is less unfavorable; but here, too, the patient offer dies from exhaustion, or from extension of the inflammation to the strong membrane. The most favorable course is that in which the absence disclurges itself again into the bowel. Of the cases where it opens externally, a large properties die. Perforation of the recal appendix is

usually fatal.

Treatment.—In every case of typhlitis our chief care should be to quiet peristaltic action, and prevent any movement of the bowels, by the free case of option. Whether the inflammation has held its origin in a collection of facult matter in the exemp, or has been induced by other cames, the same accessity exists for losping the bowels at rest until the inflammation has subsided. Therefore an apericut in any shape is not to be thought of for a moment. Even encounts would be injurious while the acute symptoms continue.

The child should lie in bed, with a small pillow under his right knes; and hot hissest-meal positives should be applied to the right side of the belly, and be frequently charged. Option should be given by the mouth. A child of eight years of age will take three drops of husbanum every four hears. If this be vomited, morphis (one-sixteenth to one-twelfth of a grain) can be injected subvutaneously in its stead. The vomiting is, however, usually electical by the opiate, and the second attempt to administer it in a draught is often successful. A good combination in these cases in that of the inctures of opium and bellahomas. The latter drug is not only of great service in most forms of arcested function of the bosels, but also by its antagonistic action tends to modify the narcotic influence of the land-saum without interfering with its power as a solutive. If this conditation be used, five drops of fincture of opium may be given with twenty of the belladoma facture three times a day to a child eight years of age.

If the shild be very strong, and the tenderness severs, three or four

leecies should be applied to the painful spot.

The diet must conset of milk and bristle, given in small quantities at a time. The milk should be diluted with an equal quantity of today water, to separate the particles of card and prevent their congulating in a langit should be also alkaliused by fifteen or twenty drops of the saccharated

solution of lime to the teacupital.

When the nexts symptoms subside the bowels will generally set spontaneously. If they do not, an injection can be administered. Purgatives of any kind should be avoided for some time after consulescence is established. We can never be sure that some slight ulcerative process is not going on, and the only hope of the child in such a case would be the establishment of sufficient adhesions to prevent cupture and extraoration.

Such adhesions, if formed, an aperient would probably destroy.

In cases where we have reason to snepset the presence of a retro-ment abscess, the same reason for the accidence of purgatives exists. The shill about the kept in bed, and hot applications should be applied to the painful part. He should be fed with noursdang food in small quantities at a time; and a suitable proportion of attachant should enter into his dist. Mineral matter and checken, strong best-essence, yolk of egg, milk and toost should from the staple of his food. If the towels are obstituably confined, or facul vocating occur, an ensus may be administered, but purgatives should be avoided. For medicine, quantite and a mineral acid, with small doses of strychnia may be given, and as the child grows weaker, anmouse and bark. Directly again of pointing are noticed the pus should be let out at once.

If peritoritis occur, the treatment must be conducted as directed in the chapter treating of that subject.

CHAPTER XIL

ACUTE PERIFONITIES.

Acres peritenitis may occur in childhood at my age. It must be present in the factor, usually as a consequence of syphilis, and is then a frequent case of miscorriage. It may arise in the new-learn infant as a result of pyranic infection, and is invariably fatal. It may occur at a later period of infinely or in childhood, either us a primary discuss, or as a secondary non-site complicating the course of some other illness. The infective form of paritonias which occurs in the new-bern balay, and is accompanied by jumilies, is described absenters (see Jannelice). The present chapter deals only

with the discuss as it is seen in later infancy and childhood,

Citouties. - As in the adult, influentation of the peritoneum in children is aften induced by transmatic causes. A low or other injury to the abdomen will recusionally excite it, and it may arise as a consequence of puncture of a hydatid cost. The commonest of these causes is the extravasation of finish from the borrel into the peritoneal easity, owing to perforation of the intestine. In typhoid fever, and in ulceration of the vermiform appenild or of the recenn, this accident may happen, and a espidly fatal same to the illness namelly follows. Dr. Robert Lee has referred to two cases in children, aged respectively eight and nine years, in whom perfection of the stowach induced the peritonitis. Sometimes a local inflammation of the penteneum may become diffused, as when a typhlitis or pentyphlitis, or as invarianted portion of the intestine sets up general portioneal inflanmation. Mr. Cording has recorded the case of a little boy, agod two years, m whom the bruising of an undescended testicle produced this result. Again, inflammation may extend from the chest to the abdomen. I can now recall several cases in which a pleurisy has been followed by general influentiation of the peritonoum. I have known this to happen in the first work of the illness, before the fluid had had time to become purulent; but. In treed cases it occurs later, as a result of the passage of purulent infection matter from the pleanal cavity along the lymphatics of the displanges to the personeum. In order that this extension should occur, there must, no should, be present some special conditions conferring peculiar infective properties upon the purulent contents of the thorax. Dr. Burney Yee has described the case of a schoolboy, between cirven and tuelve years of age, who was attacked in the course of whooping-cough by picuro pneuro-miaof the left side of the chest. Nineteen days afterwards this was followed by general peritoritis, and the patient very rapidly soccumbed. The same unfortunate accident happened to a little boy, eighteen months old, under my cure in the East London Children's Hospital. The child had an attack of plearney. As the fluid did not become absorbed his chest was pinetured and a quantity of purulent matter was exacusted. The operation had to is repeated several times, and at last, as the purcless fluid still continued to encouncilate, a perminent opening was established in the chest-wall.

The boy seemed to be going on fairly well when extension of the inflam-

mation suddenly took place to the penteneum and he soon died.

Positositis is sensitines a complication of the blood diseases. It is said occasionally to occur in sensitina, and orystophis may induce it. Abstractionally to occur in sensitina, and orystophis may induce it. Abstractional time referred to an epidemic of the latter distemper which occurred amount the stalders in the Morriantal Hospital in Edinburgh in the year 1824. The disease was of a said type, but two of the stalders impolly died, and on examination purewas discovered in the abdominal easity. Positoscal inflammation is also common as a consequence of abdominal tuberculosis, but the subject of tubercular peritositis will be considered separately.

Besides occurring as a result of the above crosses, peritonitie may arise as a primary discuse in a child in whom no deviation from health has been noticed. It is sometimes seen in school-children of either see, and has been attributed by Guaderon to chilling of the surface after violent

exercise, and by Legrand to lying prome upon the damp sorth.

Market Acates yo. The pathological characters of permonitis are the same in the child as in the abult. The sessets are injected and the normal polish of the serous surfaces is lost, owing to inflammatory condition. There is sufficient and thickening of the sub-secons thore, with proliferation of cells in the spitiotial assuring of the numbrane. The explainten poured out from the distended capillaries congulates on the surface and forms a false membrane, which is at first thin and grayish in colour, afterwards thicker and yellow. It causes adhesion between neighbouring organs, and gloss the coils of intestine to one another. There is besides officion into the abluminal easity. Its quantity varies. Sometimes it is regions. The final is usually epslescent, from proliferated spithstial cells, or may be distinctly purulent.

The longer the disease continues, the tougher and thicker the condition becomes, so that it may form bonds which pass from one organ to another, and in long-standing cases may constrict portions of the bowd and cause serious consequences. If the patient survive, the fluid becomes absorbed, and the exadation gets tougher and forms firm adhesions between neighbouring parts, as well as epaque fibrous patches upon the surface of organs, more or less thick and hard. When the peritorials is at first partial, as may improve when the inflammation is due to perforation of the bowd, the exadations and consequent adhesions may confine the extravenated matters within certain limits, and thus localise the inflamma-

tion.

Pent-up collections of matter may also arise in the following manner: On account of gravitation the purulent fluid is apt to collect in certain spots, especially above and behind the liver. If the child do not dis, the fluid, thus accommissed, may become abut off by adhesions so as to produce a local absence. Absences origing in this way are usually sented near the displangue, often between that muscle and the liver or sphere. Such a collection of matter may eventually open into the chest and set up passimothems.

Symptoms —In the child peritoratis may give rise to violent and neste symptoms, as it does in the adult. As a rule, it is the primary form—essential peritoratis, as it has been called—which is accompanied by these signs of serious disease. Also, when the inflammation follows upon a blew or other external injury in a child previously in good health, the symptoms are usually striking and sweers. In the secondary form, when the child is already reduced by illness, the symptoms, although often sufficiently pro-

pornowl, may yet be to a certain extent masked by the state of predound collapse into which the patient is thrown. In other cases the disease may be more or less latent, and indeed is sometimes not discovered until the

holy is subjected to examination in the dead-house.

In the severe primary form the child complains, often quite anddenly, of pain in some part of his belly-in either flank, above the pubes, or about the name! At first comporatively slight, the pain soon gets made severe and general, and at the some time the belly becomes tender. Vomiting is almost always on early synaptom. The child first ejects partially digested bool and then glairy and belieus matters. If the efforts to vomit are viobut they occasion great distress, on account of the pain and tenderness of the belly; and after each effect the child lies back with haggard, pale face, Icals of sweat standing upon his brow. Fater is present from the beginping and may be preceded by a sense of chilliness, or even distinct rigors. The degree to which the temperature rises turnes, as it does in inflammafior of the other serous membranes in the child. Sometimes it may reach \$11', or even higher, but at other times it remains little over 100'. average degree of pyrexia is perhaps between 191" and 192". At night the child is restless and alcops little, often waking ap and crying with pain in his belly. Sometimes be as disturbed by delirious functioned talks wildle.

Almost from the first the child is unwilling to move, and he soon takes to his bed. There he lies upon his back, or inclining to one side, with legs and thighe firsted. His face is pule and distressed, his none looks sharp, wal the nostrilears thin and expanded. The slightest touch upon the belly is painful, and he seems to dread the besst movement. If the root of the blabber is involved, there is retention of usion. If the parisonnal coat of the hours is inflamed, attacks of the most violent color may come on at intervals, and throw the child into an agony of pain. On examination of the belly, this is seen to be distended with gas; it is motionless in reapration; there is some tension of the parietes, and the tenderness is excesers. Contly precussion elicits a typoponitic seems over the autorior regions: but in the depending parts, where the fluid collects, the note is dull Sometimes the fluid is sufficient in quantity, and sufficiently free, to give a district sense of flactuation; but the absence of free flactuation is no sign of the absence of fluid. There is often effusion between the coils of intesthe and in the meshes of the exaded lymph, but this transmits the wave of first very appendently from one side of the bells to the other. As a general rule, perhaps, fluctuation is imperfect or absent. In these cases Departupe has suggested that the child should be placed on his side for a bu minutes. The whole quantity of fluid will then gravitate to the flank on the depending side. If the claid be then quickly turned upon his back, salars and fluctuation will be found at first at the site of the accumulated tall, but owing to the second change of position will quickly disappear.

If the distention of the abdomen become great, it may came serious distress by compressing the lungs and displacing the heart. In such cases there is dyspace, with some livelity of the face, and hurry of breathing. The torque is furred on the domain, red at the tip and odges. The palar is small, heart and frequent. The urine is high coloured, but not especially acid, and its passage causes no pain. The boreds are confined or related. Constigution is the rule in shalls, but in children it is common to find loosaness of the bowels with waters and offensive stools. Still even in the child, if the necessiar cout of the bowel be involved, and there he no web-mirrors ardems to cause offusion into the intestinal tube, the bowels

tray be obstinately confine L

As the illness progresses the veniting usually conces, but the other symptoms become more and more severe. The tympanitis increases; the tongue becomes dry and brown; the eyes are sunken; the face is languard and pule, often symmetric. The child lies with his eyes helf-closed in a drump state. His pulse is excessively small and rapid; and death usually occurs

by the end of the week.

In exceptional cases the disease ends in recovery, the fluid being absorbed or discharged through the meet or abdominal wall. I have not with one case in which purplets matter escaped in large quantity through the unfailtens, and the cital recovered. If the pus be examined by this claimed, the react experienced by the patient is usually extreme. The values of the belly is diminished; counting, if it had persisted coases; the targue begins to clean, and some signs of returning appetite are manifested. M. Ganderon has referred to ten such cases, in eight of which recovery took place. The fistuals left after the discharge of the puredent matter closes in about a month, sometimes at an earlier date. The dischars is and sensetimes to pass into a chronic state. Such a termination would coast an pricious of a tabercellar origin for the pertunitie. There are for recorded cases of chronic pertunities in the right, where an opportunity of examining the body was afforded, which do not make mention of tubercle in the abdominal cavity or in the lungs.

When the periounts is the result of perforation of the borsel, the occurrence of this serious accident is indicated by sudden severe pain in the belly, which becomes distended with gas and excessively tender. At the surse time the child is reduced by the shock to a state of collapse. His face is languard and ghastly boking; his even are deeply sunken; his pulse becomes very quick and small; his teresthing is thoracie; his hands and feet are cold, but the temperature of the body, if taken in the rectum, is found to be 103°, 104°, or even higher. Semetimes he counts, and the accretion of unne is suppressed. On examination of the helly it is found that the liver dubosa has disappeared. Nienever gives this as a certain sign that periousitis resulting from perforation of the bowel has taken place.

The above is the typical form; but often the symptoms are much less characteristic. Pain and tenderness may be little complained of, and as Andral has pointed out, sudden increase of the prostration and the glastly look of the face may be the only symptoms drawing attention to this new complication. Even when the pain has been as are, it often crosses completely for some hours before death. In most cases the child survives perforation but a very few days. Sometimes, if adhesion have pervisually taken place in the neighbourhood of the ulcer, so as to confine the extravanted matters to the immediate vicinity of the rupture, the peritonisis may be isoslined. An abscess then forms, which after a time makes its way to some point of the surface, and discharges its contents extensibly. Under these more favourable conditions the child may recover, but it is not flow to say that such cases are exceptional.

Sometimes peritonitis in the child is entirely latent, and is only discovered on post-morten examination of the body. In such cases the belly may be swollen, and the child may look ill and colourless; but pain may not be complained of ; there may be no tendernous of the abdoness, no tension of the paractes, no fluctuation, or other sign to indicate the presence of this serious lesion. I have only observed this heppt form in cases of securitary peritonitis. In the little boy, whose case has been before referred to, where peritonitis resulted from extension of the parallest inflammation to the belly from the chest, the abdoness was swellen, and a sufery diarries began which resisted all treatment; but there appeared to be no pain or tenderness; the parietes were soft and flaceid; no flactuation could be detected; and although on account of its fainess the ablance was repeatedly examined, nothing was discovered to lend to the suspicion of the existence of peritonitis. On examination of the body some parallel fluid was discovered in the peritonical cavity, and the bowels were more or less adherent from examined lymph. It is important to be some of the occasional latency of the inflammation, so that we may not exclude peritonitis, because the symptoms and again are ill mathed and little characteristic of the lesion. If in such a case the definion, restless and tendency to stoper are amountably prominent, the most experienced physician may manappeared the nature of the illness and be disposed to aspect the onset of a meningitie. Dupareque relates a case in which this mathe was actually analle, and the error was only discovered on examination of the body.

Proposes — When the symptoms are well marked the diagnosis of the disease is easy. Swelling of the helly, which takes no part in the respiratory novement and is intensely painful and tender; comiting; a pule haggard hos, and a quick very pulse—these, together with the position of the child in his bed, with the thighs flaxed, and his dread of movement or even of a

touch, form a very characteristic group of symptoms.

When the inflammation is a consequence of perforation of the bowel, the complication is sufficiently clear. Even if the pain and tenderness are inconsiderable, the suiden occurrence of colleges with tempunitis sufficiently indicates what has occurred.

From tuberculous peritonitis the acute simple form may be readily delinguished by the more violent character of the symptoms and the more mail course of the disease. In the tuberculous variety vomiting is mrs, and the illness runs, as a rule, a very slow and chronic course.

In colic there is often constipution and vomiting, with severe purcayonal pain in the belly; but between the attacks of pain there is no tenderness; the pulse is less rapid, small, and viry, and there is none of the fear of movement which is so characteristic of peritoritis.

Rheamatism of the abdominal wall may be mistaken for inflammation of the peritoneum. The distinctive characters are given elsewhere (see

page 159).

It is important to remember the occasional latency of the symptoms in peritoritis. Tension of the abdominal parieties on pulpation, especially if partial, in a child above the age of infancy, must not be disregarded. It may, of course, be voluntary, and the belly be quite healthy; but if the abdomin is full, and the child looks ill, with a largeard, pinvised face, we should consider the possibility of peritonitis, and make a very cureful exminution. In cases of chronic conpressa we should be always on the
watch for the occurrence of peritonitis. If the child, after a period of improvement, cease all at ones to gain ground and begin to look pule and
fairnessed, with an elevated temperature, a more or loss distended belly,
and a rapid, very pulse, we are justified in suspecting peritonitis although
there be no tension, tenderness, or other sign connected with the abdomen to give support to this opinion.

It is well in all cases where a feverish child looks ill and has a distended belly, to make trial of Duparcupu's plan of placing the patient for a minute or two on his side, so as to allow all the peritoneal fluid to collect in the depending flank. Turning him, then, quickly upon his back, evidences of fluid, if peritonitis be present, will be found at the site of secumulation.

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Had this been done in the case of the little boy slready twice referred to, the cause of the distention of the abdomen would not have escaped to-

cognition.

When the inflammation affects exclusively the visceral peritonous, the muscular coat of the bowel is usually implicated. There is then often obstinate constipation from paralysis of the affected portion of the intertime; there may be comiting; and excessive tenderness of the belly is combined with pureayous of colicky pain of agenizing severity. Such cases may simulate very closely obstruction of the bowels, and may be michalen for introduce ption. Some time ago I saw, with Mr. Icod, of Esher, a young Lair, agod ten years, who had got up in her asked health on the morning of the previous Sanday. In the afternoon of that day, ofter running about in the gunlen (the day was very damp) she complained anddenly of pain in the belly. That might she slept fairly well, but complained of pain again on the next (Monday) arorting. A pill was given to ker, followed

by a saline

This acted on the bowds, but the pain was not relieved. She slept bully that night. On the Tuesday morning she was seen by Mr. Isod. also found a temperature of 192°. There was some tendernoss of the belly, with frequent puroxysms of collecty pain. She had had no woniting. Opini was given, but the pains continued, becoming more and more frequent and more and more severe. The howels were confined all the week except on the Thursday, when they acted spontaneously twice, the stock being exprous and lumpy, light coloured and rather offensive. I saw that child with Mr. Irod, on the following Sunday - the eighth day. She was lying in bed hollow-eyed and hwid. Every ten minutes a paroxysm of pain came on during which she raised beneff up in an ageny and tried to get on to the floor. The belly was smallen and excessively tender, the alightest touch oppearing to induce a fresh access of pain. The child had been kept for some time under the influence of chloroform, but when the anosthetic was remitted the pain instantly returned. Hypodemie inpertions of morphis and atropins were given repeatedly; but large quantities of these narcotics appeared to dell the pain but slightly. The child died on the following day.

On examination of the body the small intestine was found healthy, except for a reddened and alcerated patch in the middle of the jejimum. The large boxel was distended with liquid faces. Its parietal cost was very red and inflamed, but there was no injection of its narrows iming-The parietal peritoneum was not inflamed. Its cavity contained much

dirty serum, but no lymph.

If the inflammation, instead of being confined to the visceral perionoun, spreads through the muscular cost to the mucous membrane (pinegmonous enteritie) there is, in addition to the above symptoms, a profess watory districts. The diagnosis is then easy. If the notions membrane is not implicated, there is constipation which may be obstinate. In such a case introspecuption may be excluded by noticing the early occurrence of headerness, of abnormal tension of the abdounted wall, and in most cases of forer. Moreover, there is no tenomus; and the passage of blood and bloody mucus from the howel, which is such a characteristic feature of interespectation, is absent. If, as in the case just narrated, an action of the boxels, quantaneous or otherwise, occurs some days after the beginning of the illness there is evidently no complete obstruction of the intestinal channel; but unless the invaginated portion of gut he tightly constricted, secondary peritonitis is very unlikely to uruse.

Prognost.—The disease is fatal in the large nationity of cases. In primary peritonitis from cold the chances are perlaips a trifle less unfavourable than in the other varieties. Eachlessness and inability to sleep are had signs. In partial peritonitis, if the inflammation remain localised,

the child will acmetimes recover,

Toulesest.-Directly the existence of peritositie is ascertained no time should be lost in resorting to energetic measures for its removal. The most perfect quiet in hed should be enforced, and the presence of too more alternated should be strictly forbidden. One good nurse can do all that is required. Turpentine stupes should be applied to the belly, and uping about be given by the mouth or by hypodermic injection. For a whill ten years of age six or eight drops of landsmum may be given in a tempoonful of mater every four hours, or one-twelfth of a grain of morphia may be injected under the skin, and the operation can be repeated as reguired. It is best to produce drownness, with some contraction of the papil. Cinkirsh vary greatly in their susceptibility to this form of narrotic; but inflammation of the peritoneurs, if the pain is great, may require larger quantities of the alrag than one would be disposed to anticipate to produce a sufficiently sesiative effect upon the patient. Thus, I have known a little infant of four months old, who was suffering from agonsing color, owing to inflammation of the peritoneal coat of the bowels, take three minims and a quarter of hardsman in the space of two hours, with but little remission of his suffering. The same infant some hours afterwards had a hypodermic injection of one-twelfth of a grain of morphia; and this powerful dose, although it contracted the populs to the size of a pin's point. did not completely suppress all signs of pain. Energetic counter-irritation is of great value in those cases, and when the turpentine can no longer be endured upon the abdomen, it may be applied to the front of the chest or to the back. Cold applications are well beene in many cases, and seem sometimes to comfort more than hot flameds. Cold is employed by means of cloths wrong out of ice-cold water and frequently changed.

All purgatives are to be avoided. If it be considered necessary to reliew the bowels, this can be done by enems. If the peritoneal coat of the intestme is involved, constitution is often absolute; but it is best to make no attempt to excite a movement. Our object is to quiet peristaltic action and imure rest. Probably the chief value of opium consists in its inflames in this direction. Any attempt, therefore, to oppose its action. will be leartful. If in these cases the puroxysms of pain are frequent and agreeigng, it is advisable in a robust subject to apply lecches freely to the abdoness. I believe this form of disease to be one in which the abstraction of blood is a distinctly valuable therapeutic means; and should not heutate to employ ten or twelve beeches, or even more, if the attacks of relicky pain resisted the action of morphia. Even when the inflammation is limited to the parietal peritoneum, feeches may be employed in the case of a stundy child, when the disease is primary, especially if the pain and tenderness can be referred to any particular spot. In many severe cases of peritoneal enteritie, where the pain is excessive, and morphia even following the application of leeches, proves impotent to control the paroxystes of sufering, it is advisable to keep the child under the inducace of chloro-

TOPIN:

If thirst be much complained of, it is best allayed by sucking see; and the same measure is also useful in checking the tendency to voice. The food should be concentrated. Strong beef essence, milk in small quantities at 1 time, and yelk of egg can be given; and as the patient becomes weaker, a teaspoonful of sound brandy in milk or water should be administered

every few hours.

Tympanitie is a symptom which it is difficult to treat successfully. I have never seen benefit result from ensumts of associatida or the passage of a long tube into the bowel. It is best relieved by free stimulation, and the external application of turpentine. If the shild survive, and the abdominal distention continue after the inflammation has begun to subside, as a consequence of less of tone in the bowel, gentle frictions to the belly, compression with a flamed bandage, and quinne and strychnia by the mouth are of service.

When peritoritis is the result of perforation of the bowel, warmth to the abdomen and the fest, the free use of opinus, concentrated food, and

energetic stimulation offer the best chances of success.

In every case where collections of matter can be discovered under the skin, either at the unbilicus or elsewhere, no time should be lost in unling the escape of the pus by the puncture of a lancet.

CHAPTER XIII.

TUBERCULAR PERITONITIS.

In inflammation of the peritoneum which results from abdominal tuberculosis usually runs a subscente or chronic course. The disease is rurely acute; but it is important to be aware that an acute form is occasionally not with, and is very difficult to detect. Tubercular peritonitis may be the only indication of the tubercular disease to be discovered in the body, or may be accompanied by signs of distress from other parts of the system. It is rurely seen in young children, perhaps never in infants, and does not begin to be a common affection before the seventh or eighth year of life. After that age, however, it is frequently met with. The surfact age at

which the disease has come under my notice has been three years.

Marked Assistance. On opening the abdomen in a case of tubercular peritoritis we find the bowels covered more or less completely with vellowish, greenish, or gray coloured lymph. The consistence of this various It may be loose and soft in texture, or tough. Usually it is mixed up with thick cheesy matter. The lymph often lines the parietal peritoneum, and penetrates between the coile of intestine, which it glass firmly together. Sometimes the whole bowel is so matted together into a confused mass that it is guite impossible to follow out the course of the cared. More or has greenish or vellow puralent matter is held in the meshes of the exaded brook, and more is even to have gravitated to the deeper parts of the aldoninal easity. On clearing away the lymph from the surface of the peritonrum and contained organs, we find gray and yellow granulations studing the surface more or less thickly. With these are larger masses and even broad plates of cheesy matter, probably also tubercular in their nature. These are yellow or favn coloured, and may be dotted with black points of pigment. Similar cheery masses may be discovered lying in the adhesions formed by one organ with another—between the liver or the stomach and the displanger, and between the coils of intestine. The more chronic the case the larger and thicker are the caseous masses." When the case is acute, these are neually absent; but the serous surface is covered with lymph in the entistance of which are scattered gray and yellow granulations varying in size from a pin's head to a pea.

The larger tabercular cheesy masses may cause the intestinal wall to pire way, perforated from without. Extravasation of the contents of the intestine rarely takes place into the peritoneal cavity, owing to the existence of the firm adhesions; but in this way a new and manatural communication may be formed either between two different parts of the intestinal tube, as was noticed by Mesors. Billiet and Barthez, or between the bowel and the

trabilions, as happened in a case recorded by Henoels.

In the most chronic cases the adhesions may be very lough and filtered, and even the lymph on the peritoneal surface may resemble connective tissue. The orientum, itself unusually firm in its texture, may be adherent to the abdominal wall; and the mesentery may be tough and contracted

Tubercular peritonitis is not always general. Sometimes it is partial, and is then usually confined to the upper parts of the abdominal cavity the neighbourhood of the disphragm, the liver, and the spices. The liver itself is often enlarged from anyloid or fatty change, and has been found by some observers to be cirrhotic. The towels are often the sent of tubercular ulceration, and the mesenteric glands are enlarged and chemy.

Besides the peritoneum, taberde is often found in other organs. In the more chronic cases it may be limited to the abdomen; but in the sente form the abdominal disease is almost invariably a part of a general

development of inberrie over the body.

Symptoms.—Tobercalist peritoritis always begins insidiously, and its symptoms may be far from being well marked. In some cases attention is directed from the belly by the more striking phenomena arising from tubercle, and the consequences it involves, in other organs; but even if the talarcular granulations are limited to the abdomen, the early symptoms are often curiously insignificant when we consider the serious nature of the disease. In these cases of local tuberculosis the general nutrition may be good at first, and the appearance of the patient fairly robust; but as the illness progresses the child rapidly loses flesh, colour, and strength, and before death occurs may reach an extreme degree of smarration.

In an ordinary case, the first sign noticed by the mother is that the child's belly looks large, and the next, that it is a little tender. The child is unusually belless and dull. He looks ill. He avoids exercises which cause a jelt or jar to his body, and shows a contion in all his movements

which soon attracts attention.

A boy between ten and eleven years old was trought to me at the hospital. The hal had always been builtly and active, although there was a tendency to consumption in his family. For some weeks it had been noticed that he looked pale, often complained of narses after feed, was largered, by about instead of phyring, and cried if he was scoiled. Then he began to suffer from pains in his abdomen, and excused houself on this account from running errands as he had been accustomed to do. Pressure on the belly, as in leaning against a chair or table, had not been noticed to be painful; but the boy said that if he leaned forward his "food" rose at ence. After some days the abdomen began to be tender and painful. The child complained of feeling cold, and slept builty at night. He was thirsty, but cared little for food. The bowels were relaxed.

The above is a very good illustration of the mildness of the early symptoms, and the stealthy way in which the discuss crosps on. The abdominal passe appear to be at first intermittent and of a graping character. The bowels are relaxed or confined. Often the discuss is said to have begun with discribon, and the attacks of looseness are sensetimes separated by periods of some or less marked constipation. Numera and constitue not such common symptoms in this form of peritonitis as they are in the simple variety, and the appetite may be preserved for a considerable time.

After some weeks the tenderness of the abdomen and its sensitiveness to the slightest jar or shock, as well as the increming weekness of the patient, obliges him to keep his bed. But he will sometimes go about as usual, if allowed to do so, for a long time—long after the disease is fully established. He may then be noticed to take very characteristic precontions to avoid joining his belly when he moves. Thus, he will steady it with his hand us he walks; and go backwards down-stage, so that he may more conveniently pass from step to step upon his tees. If the temperature be taken at this time, it will be found to be higher than normal; but the moreoury soldom rises above 101" in the evening. In the morning it

may be at the natural level.

If the built is examined, it will be found to be distension and oval in shape, the projection being more marked about the umbilious and apignetrious than below the nevel. The skin has often a shiny look; the seins ramifying over the surface may be noticed to be full; and the natural markingsof the belly have disappeared. On polpation there is often increased tenslow of the rects namedon, which contract instinctively to protect the tender peritoneum, and the resistance offered by the contents of the abdomen is very anequal. In some parts the parietes are easily depressed; in others a certain feeling of solidity is conveyed to the finger, and distinct, firm masses may be often detected here and there. These are usually tender, and frequently pressure upon my part of the belly runses pain. In some cases five fluctuation can be detected. If there he pressure upon the portal win by onlarged glands or caseous masses, the amount of series may he large. It is then often recompanied by colonia of the lower extremities and abdominal wall, with dilutation of the superficial veins of the belly, It is seldom, however, that these symptoms are noticed. Usually the amount of effused fluid is small, and there is merely an imperfect sense of impulse conveyed from one side of the abdomen to the other; not a disfirst top of the wave of fluid, such in we feel in the assites accompanying combons of the liver. If the amount of fluid be small, or its consistence thick, no fluctuation may be discovered; but in these cases it will be noticed that on percussing the belly the tympanitic note which prevails courths greater part of the abdominal wall changes in the flanks to dulness from the presence of fluid; and that if the child be half on one side, so that the finish may gravitate downwards, the note on the flank turned uppermost becomes clear.

Of these signs the most characteristic are: The enlargement of the belly, with its empoth, shining surface; the tenderness, the unequal resistmos at different parts of the abdominal posistes, and the indistinct flucfuntion. In some cases, however, many of these symptoms may be about. The tenderness may be insignificant and the purietes perfectly flaceld; fluctuation may be completely almost; and nowhere may my sense of resistance be experienced by the hand pressing the abdomen. Thus, in a little boy of four years old, after three weeks of illness it was noted : "Abdomen large and smooth, with loss of natural markings; superficial. tuits of chest and epigastrium dilated; abdominal wall perfectly faccid; to formation to be detected; edge of liver felt one finger's breadth below the ribs; edge of spheen not felt; several image about the size of a walnut can be prevered in different parts of the abdomen, but not very deeply planel. One of them is immediately below the edge of the liver. They som tender on pressure, but there is no general tenderness of the belly. Chest leadthy. Tongue dry and glazed-looking." The temperature that rrang was 98.6". The child died about a week after this note, of secondary tabercular meningstis. If, in such a case, the liver he much enlarged In fatte infiltration, a very incorrect opinion is likely to be formed of

the nature of the illness.

As the discuss progresses, the skin often gets very hards and rough. The child looks baggard seed distressed; he rapidly wastes, and his temples soil cheeks grow hollow. He lies on his back, or turned partly on to his side, with his knees drawn up, and every movement to possibil. The

tongue is dry, and is either thockly furred or is clean and shining, as if denucled of epithelium. The appetite is lost; the thirst is great, and the lowels are generally reinsed. Often, the motions consist of dark, watery, offensive matter, with a flaky deposit containing black clots of blood. Such a stool is very characteristic of ulceration of the bowels. Instead of diarthese, there may be constipation which may prove obstinate. Fatal obstruction, even, may susne. Sometimes at this period the distention of the absomen becomes very great, and the child is termented with spasms of colicky prin. In other cases, the size of the belly diminishes, and hard, tender lumps are felt, apparently in tirm contact with the under surface of the absominal parietes. The temperature, which before was variable and aften little rested above the normal level, now becomes higher, and in the evening may reach to between 108° and 104°. The emicration of the child is great, and his weakness extreme.

When the discuse reaches this stage, improvement rarely takes place; but at an earlier period of the illness it is not uncommon for the nodally to take a favourable turn. The tenderness and tension of the belly then diminish and disappear; the appetite returns; the distribute censes; the autrition of the child improves, and he begins to regain flesh. The favourable change may go on in fortunate cases to complete recovery, and although the belly for a long time remains large, there is no return of the actions symptoms. Often, however, after a longer or shorter interval, the child begins to fail once more; inflammation is lighted up again in his peritoneum, and this time the illness goes on uninterruptedly to the end.

In some cases, the course of the disease is very carable, and is broken by occasional periods of remission in which hopes of amendment are mised only to be disappointed by an early return of the worst symptoms. Often, the end of the disease is preceded by purpuric spots on the body, and by orderns of the legs, with no albumen, or with only a trace of it, in the wine. Disth may be historical by tubercular disease of other organs, especially of the lungs, and secretimes, as in the case referred to, the patient disc with all the symptoms of tubercular meningitis. In mrs cases, perforation of the bowel takes pince, or un absense forms at the unbilicus

or some other part of the abdominal wall,

This chronic or sub-acute form of the disease to always slow in its course, and usually bots several months. It is the form the disease resumes in the large majority of cases. Occasionally, however, the peritoritis is acute. In all the cases of acute tubercular peritoritie which have come under my notice, the abdominal discuse has formed part of a general tuberculosis. The child complains of print in the belly, but me exammation of the abdomen gives entirely negative signs. There is no tenderness of the parietes, or pseudo-fluctuation; no cassons lumps can be felt; and the belly, although full, may not exhibit any remarkable swelling. The child looks ill, and is langual; his appetite is poor, and his evening temperature is higher than natural. Offen, his bowels are relaxed. These symptoms, as in all forms of mente tuberculosis, succeed to a period more or less prolonged, of general but indefinite malaise. After an illness lasting a few days or a week or two, the child dies, with or without the symptoms of meningitis. After death, his bowels are found matted together with recent lymph | there is, perhips, a little thin purelent flaid in the peritoneal cavity, and the signs of general tuberculoses are discovered over the body. In most cases, the existence of the personatie is only revenied by purtoucetess examination.

A boy, aged four years, was under the care of my colleague, Dr. Donkin,

in the East London Children's Hospital. The child was said to have been ill for two weeks. He had first complained of pain in the belly, which was full and distended, and his bowels were relaxed. The pain was attribured by the mother to wind, for it was relieved by hot grog. The looseness of the bowels caused after a day or two, but the boy remained weak and listless; his foot swelled a little when he sat up, and his face was noticed to be puffe in the mernings. For two or three days before admis-

mon he had had a slight cough. When the boy came into the hospital his face was a little puffy about the cyclids and bridge of the noise. The heart and lungs appeared to be normal. His belly was distended, but there were no dilated superficial veins; no dulness was noted on percussion in either fluck; no enlarged glands or fractuation could be detected; no pain or tenderness was complained of; and the liver and splean were of normal size. There was a little adema of the scrutum, but none of the lower limbs. His urine was gants, but there was no albumen. Palse, 88, regular; temperature, 98"; respirations normal. After a few days, us the temperature was natural, and the boy was up and about and somed convalencent, there was a question of sending him home. Before this could be done, however, a sudden change took place in his condition. He became very drowny, and was breed to return to his bed. He then began to venit; his pulse was 80 and intermittent: his temperature row again, and he seemed at times to be only half conscious. Three days after his return to his bed, the boy had an attack of convolutions; his temperature went up to 105°, and he diel. On examination of the body, there was found a basic meningitis. with many gray granulations in the cranium. Similar granulations were seen on the plears. The peritoneum, both purietal and visceral, was profinely stadded over with gray and yellow granulations, varying in size from a pin's head to a pea; and there was much recent lymph, which Init united together the coils of intestine, and fixed them with the openturn to the abdominal wall. There was no excess of fluid in the peritoneal envite.

Such a case is very perplexing. The only symptoms pointing to the ablances are the abdominal swelling and pain; but those alone, in the absence of tension and tenderness of the parietes, or other equally characteristic exception, are insufficient to establish the diagnosis of paritoritis. Pain in the belly is a symptom so frequently met with in the child that its securence carries little remark; and a large belly in young subjects in not sufficiently uncommon to attract special attention. Still, if we are swars that the illness may run this rapid course, such symptoms, taken in connection with the general weakness, the slight orderns without albuminuis, and the terminal neutifestations of cremial disease, may justify us in

at least suspecting the existence of the abdominal complication.

Dispersion—In ordinary cases, the diagnosis of tubercular peritonitis is easy. Inflammation of the peritoneum developing slowly and institionally, accompanied by rapid westing and a very variable temperature, and presented by general impairment of nutrition and abdominal pain, is very supicious of interview. We must remember that tenderness and tension of the abdominal wall may be little pronounced, and that finetuation is after absent, or, if present, is usually imported and indistinct. A definite tap reachly transmitted through the fluid from our side of the abdomen to the other, although met with in rare cases of tubercular peritonitis, is yet not at all characteristic of this disease. Indeed, if such free fluctuation be present in a child who is bredy and fairly active, it tells rather against than

in favour of the diagnosis. In doubtful cases, it is desirable to test the effect of a sudden jar upon the child. If he be made to jump down to the ground from a low choic and experience no uncosiness from the little shock, it is improbable that the peritoneum is inflamed. A child with abdominal tubercular disease is invariable dull and listless from the earliest period of the disease. He looks ill from the first; and although he may be fairly stout, there are usually signs that his notrition is already impaired. These symptoms are of great importance when combined with abilitational pain, swelling, and tenderness. Chronic digretive derangements are common to early life, and I have known children who have been habitually overfed with faringerous food, to be subject for months together to attacks of abdominal pain, often of great severity. But such children are lively and setive enough; although puls and other fiably, they do not look ill; they have not the careworn, haggard expression which is almost inseparable from serious disease at every period of life; and although the abdomen may be full and sometimes painful, the fulness is variable, often subsiding completely; there is no tenderness or involuntary tension of the parietes, and the temperature is that of health. Such eases are easily rured. Limiting the consumption of furinaceous matters, a gentle spenial, and an alkaline aromatic mixture, will soon put an and to the indisposition.

The acute form of tubercular peritonitis is often puzzling, especially if, as in the case referred to above, the abdominal symptoms are limited to some aveiling and pain. In such a case, typhosi fever is often suspected, and the pyrexis, wasting, and increasing weakness may seem to give strength to this equinon. No evidence is to be derived from the state of the browls; for whether confined or relaxed, either condition is perfectly excapabilite with enteric fever. Even if more distinct evidences of performation occur, these may be attributed to performing and consequent inflammation. Still, the absence of rash and of splenic enlargement, the reconstructly moderate pyrexis, and the more happard aspect of the pulient are not in favour of typhoul fever; and if fluctuation can be detected in the abdomen, or slight ordems of the legs and face is noticed, this disease may be at once excluded.

Proposits —Tubercular peritoritis is not invariably fatal, and therefore we should not at an early period of the illness act as if the case were
a hopeless one. Tension and tendemess are important symptoms, and if
the child first in one position, with his knees mixed, apprehensive of the
least movement, the sign is not of favourable import. A profuse diarrhora
te the passage of stools indicating electrics of the bowels must be viewed
with apprehension. If the tenderness is extreme, and solid tubercular
masses can be full underneath the abdominal parietes, recovery, although
possible is very unlikely. Also, the presence of signs indicating tubercular disease of other organs is of course to be taken as of scripus ones.

On the other hand, increased regularity in the stools, improvement of appetits, reduction of pyrexia, diminution or subsidence of abdominal tenderness, and return of cheerfulness are all encouraging signs. We must remember, however, that alternations of improvement and relapse are common in this discuss, and that recovery, although not exactly uncommon, is, at any rate, an exceptional termination to the illness.

Positives,—Absolute rest, hot applications to the abdomen, and opinin internally, form the most useful means at our disposal for personting the subsidence of the discuse. The child should be put to hed, and his belly about the kept covered with hot lineed-used positions, frequently reneed If the weight of these be complained of and there is much pain and buildeness, great relief is often derived from smearing the surface with a saler composed of extract of buildednas and glycerine in equal propertions, and covering this with a thick layer of cotton-wool. The child should take a draught containing a less drops of landamus every night, and if his stomach will hear it, cod liver oil may be administered. Disrhon should be treated with full doses of bismoth and a drop or two of fincture of opinus two or three times a day; or three or four grains of extract of homotoxylum may be combined with three drops of hardamus and those of ipenarusahs wase in a chalk mixture for a draught to be taken several times in the twenty-four hours. Purging will also be releved by a small injection of starch and hardamus, given at night. If there be constipation, it is better to swell aperients and trust to injections to relieve the bossels. When necessary, the accompilation can be cleared away by a good onesten of soap and warm water.

The diet of the child should be regulated to suit his powers of digestion. Strong beef-ten and other broths, milk, yolk of egg, minced matter or chicken, fish, bread and leater, and light publing should be given. But great attention should be paid that excess of farinaceous matter is not allowed, as acidity and flathdence will increase the discomfort of the patient and be decidedly injurious. A stimulant is required as the strength begins to fail. The brandy-and-egg mixture of the British Phuruacoposia.

is the best form in which this can be administered.

CHAPTER XIV.

ARCITES.

As accumulation of fluid is sometimes met with in the peritoneal carriy in the child as a result of various causes, and it is not always easy to refer the symptom to its true origin.

Crustion.—In childhood, as in after life, ascites may be the consequence of periousal inflammation; of obstruction to the flow of blood through the

portal win; and of causes which influence the systemic circulation.

In peritonitis the quantity of shad is rarely great, and sometimes it is so small that it is with difficulty detected. Even in the subscute peritonitis which is the result of toberculosis of the scroots being of the absormathere is rarely great excess of fluid. In both cases, the symptoms connected with the belly may be so little characteristic that the disease passes con-

pletely unnoticed and is only discovered after death.

The circulation of blood through the portal win may be obstructed by causes which not within the liver substance or affect the venous channel before its entrance into the organ. Circhosis of the liver may cause great impeliment to the portal sirculation; and there is every reason to believe that this form of disease is less uncomment in the child than was at one time supposed. So, also, hepatic industrien resulting from congestion of the argum may be attended by the same result. A hydratid of the liver, if placed near to the concave surface of the gland, may cause sufficient interference with the flow of blood from the abdominal viscous to lead to service efficient. In the care cases in which the liver is the sent of a malignant disease, matter may also occur; and I have known it to be produced by apphilitic gummats of the liver in a young bolly.

Of causes lying outside the liver, the most common is the presence of a mass of caseous glands in the hepatic notch. This will press upon the portal vein as it enters the transverse fasser. Pressure may also be exercised upon the vein by malignant or lymphomatous growths of the meantery,

but these are very rarely met with.

Of the causes which act through the general circulation heart disease takes the first place. It is common in cardiac lesions to find socites continued with general orderm, and very often serosity is poured out, not only into the peritoneum and subentaneous tissue, but also into the pleural cavity. Disease of the longes seldent gives rise to savites in young subjects; and in cases of Bright's disease, although general droppy is common, abdominal affision is more rurely seen. Extreme anamin is sometimes attended by macites, but this is not a frequent result of more improverishment of blood.

Symptons.—In a marked case of socites, the belly is distended and globular. As the clabilities on his back the outline of the abdomen is more rounded than in the erect position, for the fluid gravitates and tends to collect in the fluids and swell them out. The skin of the belly is smooth and shinner, and may be tense. The unbelieus is generally prominent, and often the superficial veins of the abdominal wall are unsuburally visible. When the observer places his hands one on each side of the belly, a slight top of the finger sends a distinct impulse through the fluid to strike against the hand in contact with the opposite wall of the abdomen. This was of factuation is not stopped by pressure made in the middle line of the belly.

On percession, the note is clear over the apper part of the belly, and dall in the flanks. The dulness varies according to the position of the shift as the fluid always sinks to the most depending part of the abdominal cavity. Consequently, the side turned appearant always gives a resonant note. If the amount of fluid be very large, the dulness may be general, except perhaps, over the region of the stomach and transverse colon. In such cases there is usually dyspour from interference with the action of the displacing; and this is often so distressing that the child cannot lie from in his best. It may be accompanied by a certain amount of collapse of the turns of the large. The pressure of the accumulated fluid may also set up orders of the lower extremities and genitals, and this quite irrespective of cardiac disease.

In section, although excess of fluid will excite discomfort and distress, there is soliton actual pain unless the peritoneum be inflamed. Still priping pains may be senetimes complained of. These are due probably to the interference with digestion set up by the congested state of the gastric and intestinal inneous membrans. For the same reason, losseness of the lovels is a not ancommon symptom. The appetite is often good; the targue is usually clean; and, in non-inflammatory cases, the temperature is that of health. Often the skin is dry and the secretion of urine scanty, high-

coloured, and perhaps albuminous.

Other symptoms may be present, according to the disease of which the peritonosi effecien in the consequence. If there be peritonitis, the temperatire is generally elevated, and, in codinary cases, there is tenderness of the belly with abnormal tension of the wall. We must not, however, always espect such definite signs. As described elsowhere, peritonitis, like pleurisy and pericarditis may be completely latent, accompanied by none of the characteristic phenomena by which its presence is usually revealed. In peritoritis the amount of fluid is small, as a rule; and fluctuation is often for from being distinct. A scandy secretion may gravitate into the pelvis. and thus escape detection on superficial examination; or may be retained in the cods of intestine by adhesion of the coats of the bowel to one another. Evidence of fluid may, however, be often obtained by placing the patient for some minutes on his side, according to the plan advocated by Departure. The effusion will then gravitate into the undermost think. Afterwards, by turning the child quickly on to his back and economic the region lately depending, dulness and signs of fluctuation will be often discovered before the fluid sinks away again from the surface. Another planis to place the child upon his elbows and knees; the fluid then gravitates to the umbilical region and gives the usual evidence of its presence.

In cases of hepsitic circhosis, the peritoneal effusion is usually copious, and fluctuation very distinct. The spleen, in these cases, is often enlarged; signs of digestive disturbance are noted; the skin, in advanced cases, has an earthy tint, or may even be joundiced; the veins of the abdominal wall, especially in the unbalical region, are unmaturally prominent; and signs of dilated humorrhoidal veins, even in young subjects, may be

settetimes detected.

When the savites is due to cardiac disease, there is general amsures; the lips are bluish and the complexion livid; the jugular veins are full and pelenting, and often fill from below; the breathing is oppressed. The urine is seasily and alterminous; effusion into the pleural carities may be perhaps discovered, and an examination of the heart at once reveals the

cause of the obstructed circulation;

Dispussion.-A large belly is no sign of ascites. The abdomes in a young child is always relatively large as compared with the rest of his body; and if the child be the subject of rickets, or be injudiciously fed, or entire from looseness of the bowels, the disproportionate size of his bally is still further exaggerated. Flatulence is the commonest caree of abdominal distoution in the child, and the increase in size from this reason is sometimes so great us to excite serious alarm in the minds of the purents. It is very common in rickety children who habitually suffer from derargement of the bowels and consequent fermentation of food. In this distress, the flatnlent distention is rendered more completions by the relaxed state of the abdominal muscles and the shallowness of the polcis. Often, in these cases, on palpation of the belly, an indistinct sense of fractuation may be felt between the hands, placed on either flenk. This is conveyed through the distended bowels. It is distinguished from the supulse conterred by a wave of fluid by the effect upon it of pressure made in the midsile line of the abdonsor. If fluid be absent, the tap of the forger will then at once cease to be felt by the hand placed on the opposite side of the belly.

Enlargement of the abdominal organs may also determine the distration of the bully. Congestion, sucyloid and fatty degenerations, hydatid disease, and hypertrophic cirrhosis of the liver; a spicen subarged from emphod disease, rickets, or ague; a kidney the sent of surcoun or hydronepheosis; cancerous or lymphomatous growths from the omoutum or abdominal glands—in all these cases the size of the belly may be increased.

The only test of meites is the presence of fluctuation. This, if the amount of fluct is small, can often be obtained by placing the patient in such a position that the fluid may gravitate to the surface and thus is brought within reach of the fingers. It is not enough however, to detect the presence of assists. We have to ascertain, if possible, the cause to which this excess of fluid is owing. If the symptoms of the determining disease are well marked, the diagnosis may be easy. If, however, the symptoms are obscure, the case may present great difficulty, and often it is impossible to arrive at a positive conclusion.

A little girl aged seven years, of healthy parentage, was a patient in the East London Children's Hospital. The child had possed through measles and whooping-cough, and between two and three years persionsly had had an attack of scarlatina which was followed by deepsy; but this had been completely recovered from. There was no rheumatic tendency in the family, and the girl herself had never suffered from the smalle pains, but

she was said to be subject to bilious attacks.

Six weeks before her admission she had begun to complain occasionally
of feeling cold, and used to come back from school saying she had a broiacts. Six also occasionally complained of pains in the right side of the
abdomen, and sometimes comitted. After these symptoms had continued
for a fortnight, the pains became more severe and purceysmal, and the
belly begun to small. From that time she lost flesh. Her appetite had
been pretty good, and the bowels nearlly regular; but she had had two or
three attacks of diarrhous lasting on each occasion twenty-from hours.
For two or three days before admission she had had attacks of shivering.
When first seen, the girl was in fair condition, and, althourh pule, had

so distressed expression of face. Her lips were pink. There was no yellumness of the soloroties. The skin was a little dry, but not barsh or rough. The belly was very full and tense-booking. Its girth was 274 inches. It fluctuated freely, and the veins of the parietes were unusually sights. The lower edge of the liver could not be felt; its upper border was in the fourth interspace. The spleen was estimated by percussion the child lying on her right side) to reach from the seventh to the ninth There was no tendernose of the belly. The heart's spex was between the fifth and sixth ribs, and the precordial dulness reached upwards to the second vib. On association, a distinct rub was heard with the systole and between the two sounds at the mid-sternal base. The lungs were healthy, except for a little sub-crepitant riscuelrus at the bases, which disappeared in a great measure after a cough. The child was thirsty, but had little appetite; her torque was clean and rather red. Pulse, 128; very intermettent, weak and soft. Her bowels acted regularly every day. and the motions had a natural appearance. The mine was very clear and pale. It was said; had a density of 1,015, and contained no albuncan or the pigment. The temperature on the morning after a limitoton was 100°,

During the next three weeks the temperature continued to be febrile; the physical signs in the clost became arece developed, and the shift panel through a well-marked attack of pertearbitis with effusion. As the pericardial fluid became absorbed, the nextic effusion began also to disappear and the abdomen to diminish in size. In four weeks from the time of admission, the child was correlescent and was discharged. About a month afterwards she was readmitted with an attack of well-marked enteric fever. It is curious that during this illness the action and pericusitis both returned; but they subsided again, as before, during containments from the force. Eccutually, the girl recovered her health con-

plantely.

The cause of the scrites in this case is not very clear; but the absence
of all symptoms pointing to the liver, combined with the natural size of
the spicen, seemed to exclude cirrhosis. The history suggested peritonitis,
and allbough the characteristic features of this discuse were absent, such
shance is occasionally observed. Taking into account the previous
symptoms, the high temperature, the occarrence of perionditis as if from
extension of the inflammation, and the completeness of recovery, this view
would seem to furnish the most probable explanation of the child's illness.

In some cases, fluid may be present in the abdomen from other casess flux assites. Thus, a large hydronephrosis which almost completely fills up the cavity of the belly, may be accompanied by free fluctuation, evidently due to fluid; and it may not be easy to distinguish this condition from a explose peritoneal effusion. On careful examination, however, it will be usually found that in hydronephrosis the swelling of the abdomen is not quite symmetrical, but that the flunk on one side shows a greater promisence than on the other. The resistance is also greater over the site of the greatest bulging; and although, as the child lies on his back, the umbilicus is absolutely dull, a spot can often be discovered in the less prominent fluck where a clear pervission-note is obtained. Lastly, tapping the swelling will withdraw a fluid containing urea.

Progressis —In cases of sacities, the child's prospects depend less upon the amount of finish effected into the abdominal cavity than upon the cause of the phenomenon and the general symptoms by which the effected is accompanied. Causes which affect the system generally, or impede the flow of blood through the portal vein as a consequence of obstruction to the general circulation, are especially to be feared. Thus, socites from tubercular peritonitis, or from heart discuss, is a symptom of serious import. In all cases, the prognosis depends chiefly upon the pathological condition which has occusioned the escape of serosity. If this cannot be discovered, we must judge of the prognosis by remarking the state of the child's strength, bit bereperature, and his pulse; and by noting the degree of efficiency with which the skin and the other enunctories of the body are performing their functions. The skin in particular is an important goals. If the temperature is not circuited, the urine non-albuminous and of normal density, and the skin of natural tint, and neither dry nor harsh, we may speak favourably of the child's chances of recovery.

Frontained. The treatment of ascites in dependent upon the illness in the course of which the symptom has arisen. If pentonitis (simple or tabercular) be present, the special measures recommended in the chapters relating to those discusses must be resorted to. If the socites form a part of general dropey dependent upon heart discuse, it will be relieved by the discretics, pargotives, and cardiac tonics and stimulants which are found

efficiences in that serious condition,

In cases of ascites of obscure origin, or dependent upon discuss of the liver, iron and other tenies have often a marked influence in reducing the amount of fluid in the peritoneous and improving the general condition of the patient. The executed sulplaste of iron is well borne by children, and may be given three times a day, in doses of fire grains, to a child of three or four years of age. The fincture of the perchloside of iron with quantum is also useful; but whatever foun of chalybeate is used, the dose should be a large one. Violent purgatives are to be avoided, but constipution must be treated by suitable doses of compound historice powder, compound plup powder, or, if at the beginning of the treatment, by a grain of calound followed by a soline. The action of the skin must be maintained by a daily tepid or warm bath; and the child should be dressed in weodien undevelothing from head to foot.

If the accumulation of fluid be copious, paracentesis should be performed without hesitation; and it is now generally held that promptness in the performance of this operation is to be preferred to delay. The dist of the child, as in all forms of electric discuss, should be arranged according to the state of his digestion; and a watch should be kept over his capacity for digesting starch, sugar, and all forms of fermentable food. An excess of such matters would encourage flatalence and colicky pains.

and must therefore be avoided.

CHAPTER XV.

INTESTINAL WORMS.

Or the many varieties of parasitic worms which infest the alimentary canal in childhood, three only are of special practical importance from giving rise to disturbance or distress. These are:—The small thread-worm, the large cound-worm and the tape-worm. There is one other, the large shread-worm (tricocephalus dispar), which is also occasionally met with a but the creature seems to give rise to no symptoms, and is only discovered.

by its presence in the stocks.

Description. The small thread-morm (oxymria vermicularis), often called sent-worm, belongs to the order nematods. To the maked eye, these worms have the approximes of fine white threads. Both female and male speciuses exist together, the former being the larger. In both seven the anterior part of the body is of firsiform alaps. It is narrowed towards the head, which is abruptly truncated and provided with three tubercles. The male is one-sixth of an inch in length. Its intestinal take extends the whole length of its body, and terminates in the axus at about the middle of the tail. The tail is arranged in a spiral form. The peaks is minute and hosk-shaped. The female measures nearly half on each in length. he hody ends in a long tapering tail, which is three-pointed at the end, Under the microscope its uterine ducts can be seen to contain a multitude of ora. The eggs are long and unsymmetrical. They may be readily latched by exposing them to the sun in a moistened poper cavelope, as in the experiments of Vin and Leuckart. When this is done, tadpole-shaped embryos assume at the end of fire or six hours, and rapidly develope into slender worms. It appears from the researches of Leuckart and Heller that the embryos can escape from the ora in the human body. Heller states that their liberation takes place in the stomach under the collimes of the gustric juice. From the stomach the creatures pass into the disolenum and upper bowel, growing rapidly as they descend the alimeatury count; and by the time they reach the execute have arrived at second maturity.

According to Dr. Cobbold, the excess is the customary habitat of these parasites; but they have a tendency to sugrate, especially into the sigmoid dence and lower rectum, and can often be seen moving about in the

folds of the arms.

The keep round-norm (meanis humbricoldes), often called tradvices, is a large normatode worm of a yellowish red colour. The female is differenteries, and the male ten inches in length. The body is cylindrical, tapering to either extremity, but more rapidly towards the head. The mouth is trangular, having three lips. It is armed with numerous (about two hundred) microscopic teeth. The alimentary could is simple, without division between storach and intestine. The tail is conical and pointed. In the male it is curred like a hook towards the ventral aspect of the body; in the

female it is straight. The eggs, which are excessively numerous in each female specimen, are seal in shape, and have a thick, firm, elastic, brownish shell, which is usually nodulated on the surface. In these out, the embryos develope very slowly, for Davaine kept some alive for five years without perceiving any attempt of the immature temats to escape from the shell. These embryos have a curious tenacity of life, for they cannot be destroyed by frost or complete desicention. It has been doubted whether the eggs can be latched, and the subgross escape and puse through their developmental stages to maturity, in the alimentary canal of the subject infected with them. It appears, however, from the researches of Heller that this is possible.

The lumbriess inhabits the smaller bowel, but is migratory in its habits, and has a peculiar tendency to wander. The worms have been consequently found after death in very curious places. They have been seen in the small passages; in the largest and bronchi; in the ducts of the liver and paneress; in the gall-bladder, and even in the eavity of the peritoneum, and in the interior of abscesses concumicating with the abdomen. The worm has no power of penetrating the living tissues, but can pass through an obscrated surface. Thus, it has been known to pass through an obscrating lesion of the vermiform appendix, and set up peritonitis by catering the energy of

the abdomen.

The top-work in a flat, jointed worm which belongs to the order cotods. Several varieties of this parasite may be found in the human subject. The most common is the term modit-cassolists (the boof tape-worm). The terms action (the pork tape-worm) is also met with. The totariscophilis later, another species, is not common in the British Islands, although it is less rure on the continent of Europe. There are other varieties, but these.

as they are very seldom seen, need not be here complered.

All these worms are flat, segmented creatures, destitute of month or alimentary cumil. They grow from the head, which developes a continuous linear series of new joints by a building process. The joints are quadrilateral in shape. They are at first immature, but as their distance from the head increases, they become larger and more developed. Strictly speaking, the tope worm is not'n single purasite, but a community of individually distinct creatures of which only the lower or older members (proglettides) are sexually complete. These contain each their own organs of

generation, both male and female.

Between the T. medie-cannellata and the T. solium, the difference is chiefly in the shape of the head. In each, the neck is tapering and thread-like, and about an inch in length. This passes gradually into the anterior part of the body, which is sexually immuture, and is not distinctly jointed. By degrees the transverse lines, which mark the imperfect divisions of the young segments, become more defined and more widely separated, so that, while the more recent aegments, or those pearest to the neck, are much wifer than they are long, the older joints, as they become more and more mature, grow to be much longer than they are broad. Each mature segment (or proglottis) is about half an inch long by a quarter of an inch broad. It contains an elongated, tubular nierus, branched on either side; and the male and female organs of generation open by a common perforated popilla, which is placed at the border below the middle line, on one sole or the other, but not in regular alternation. In a worm wight feet long, the total number of joints has been reckened at about eight hundred; but it is not until near the four hundred and fiftieth segment from the heal that the joints begin to be sexually mature. The head is globular, sad

about the size of the head of a small pin. In the T. solium, it forms in front a short cylindrical proboscie (rostillum) having four projecting sockers decorated by a crown of twenty-six hooklets. In the T. nacho-cannellum there is no crown of booklets or proboscie; but the suckers are large and prominent, and there is usually a fifth smaller one in the onlinery position of the rostillum.

These worms often grow to a great length and may measure many yards. They infest the small intestine and may number one or more in the same subject. The eggs, which are very numerous, lie in the exercise ducts of the nature segments; and each contains an embryo-which, in the

case of the tenia solium, is furnished with three pairs of booklets.

The mode of development of the creature is as follows:- The tenis, aplike the other worms which have been described, does not pass through all the stages of its greeth from the ocum to maturity in the leady of the same individual, for the embreo does not develope directly into the perfect worm. There is a transitional stage which requires to be completed in the body of an intermediary. This agent is usually an animal. Thus, when a ripe joint filled with ova is eaten by an animal, it passes into the stemsch. There, the eggs are ruptured, and the embryes (pro-scolees) escape. These coality on home a tendency to perforate the tissues of the animal by when they are harboured. They may thus make their way into the cellular tissus of a muscle, into the liver or the brain. Thus sheltered, they pass through a metamorphosis, and become the systicareus or bladder-worm. The systicereus cellulous of peek consists of a syst-like body, with a head and nock like those of the fully-developed worm. These are usually insorted within the body. As long as the cysticerous is unmolested it undergoes no further change; but when the fiesh of the sninal is eaten imperfeetly cooked, so that the vitality of the cysticerous is uninjured, the creature at once adapts itself to its new situation, and attaching itself to the wall of the small intestine, developes in the course of a few mouths. into the perfect type-worm.

The botherioexplains latus in its general appearance, resembles the twotarieties of tenia just described, but is rather larger and may grow to a greater length. The mature joints are broader than they are long, and the armal openings are placed, not at the side of the segment as in the tenia, but in the middle of the joint, where they appear as rosette-shaped patches. This tape-score, like others, has an intermediate or harval stage; and it had long been suspected that its ciliated embryo found shelter in the body of some aquatic animal. Dr. Brann, of Dorpat, has lately found the early ascual form of the botherioexplains encapsuled in the intestine of the pile, and also in some of the muscles, in the liver, and in the specia of the same tish. Dr. Brann gave these organisms experimentally to dops and cuts, who were put on a strict diet and allowed only distilled water for drink. As a consequence, segments of the botherioexplains began quickly to appear

in the faces of the nimitals.

Consider.—The means by which thread-worms gain access to the human body, is by the direct passage of the eva into the mouth. The eggs are often introduced elinging to fruit, cresses, and various articles of food. But they may also be directly conveyed to the mouth by the patient himself. It has been said that the embryo is liberated from the egg in the child's stomach by the action of the gastric poice upon the orum. It has been also stated that each individual female worm contains in itself a multitude of eggs which pass out in large quantities with the stools. The subspice are probably not liberated from the own in the bowels; but if the

eva are re-introduced into the alimentary canal by the mouth, they become exposed to the action of the gastric juice in the stomach, and their contents may be set free. According to Dr. Cobbold, children frequently carry the cus under their nulls; for the irritation to which the presence of the oxyures gives rise, obliges them to seek relief by semiching. In this way the eggs may be transferred directly to the mouth.

The eva of the lumbricus appear to be imported through the medium of impure water. This parasite is said to be especially common in low-

lying, murshy districts.

In the case of the tape-worm, it is through the eating of imperfectly cooked fish infested with the systicerous that an individual becomes the unwilling harbourer of the parasite. The tents solium is derived from measly park; the tents mestic-cancillate from beef. In shildren who suffer from a chronic looseness of the bowels, and are consequently fed with

pounded raw most, trpe-worm is occasionally met with.

Spayrous.—The most varied symptoms have been ascribed to the presence of worms in the howels. Most of these are doubtless due to the intestinal demograment from which the patient is commonly suffering. That they are not a necessary consequence of the visits of these parasites is shown by the fact that it is not rare for the creatures to be found in the stools of children who have not previously exhibited any sign of discourfort or distress. In these cases, the worms are usually few in number, and can be readily got rid of by the administration of an ordinary aperiest. It seems necessary for the extensive propagation of the entozon that a caturbal condition of the bowel should be present. In the secreted mucus the embryos find a favourable medium for development, and if, as often happens, the flux be profuse, great difficulty may be experienced in freeing the potient from these arritating pests. It is in such cases only that arriero general symptoms are found; but these, as has been said, are to be rightly attributed, not to the pursuites, which may be looked upon as accidental complications, but to the unboulthy state of the alimentary moreous membrane, which hinders digestion and impairs the autrition of the body. These symptoms are described elsewhere (see page 121), and need not be here repeated. There are, however, many special symptoms which are altributed directly to the presence of womes; and as they are not accessarily the consequence of the intestinal demagement referred to, and often cease when a number of worms have been expelled, it is possible that they are really due to the irritation set up by the creatures in the bowcis.

Most of these special symptoms will be referred to in describing the particular symptoms produced by the several species of worm. It may, however, be stated in this place, that every variety of nervous symptom, from headache, and other disorders of sensation, to specie, paralysis, and convolutions, has been found associated with the presence of worms in the alimentary small. Some of these have been looked upon as pathogramonic. Thus, Dr. Underwood held that an attack of convolutions, occumpanied by small pulse and hiccough, was an almost certain sign of womes. Monro was of quaton that unequal dilutation of the papals pointed positively to the same conclusion. Others have relied upon the rapidity and irregularity of the pulse as furnishing sufficient grounds for the diagness. It cannot be denied that these symptoms may be noticed in children suffering from intestinal worms, and may possibly be produced by them; but similar symptoms are found in cases where cureful observation fails to sha-

cover my sign of the creatures or their ora in the stools.

There is one symptom which, although not positively distinctive of the

britation of worms in the bowel renders the presence of the parasites highly probable. This syngtom is a pseuliar appearance of the tongue. In all cases where the bowels are the seat of a macous flux, the tongue gives strikence of this condition. It is flabby, and indented at the edges by the both. The increased secretion of macus in the mouth gives to the tongue a sliney, guintey appearance. The lingual surface is covered with a thin costing of gray far, and the fungiform pspille at the sides of the dorsum part through the far as round or oral spots, which are more or less red, according to the degree of irritability of the atomach. In cases where somes are present, I have often remerked a psculiar fawn colour of the far covering the dorsum, and the sliney appearance of the organ line been aspecially noticeable.

A child may be indested by more than one surjety of worm at the same time. It is not uncommon to find round-worms together with threadworms; and sometimes round-worms and tope-worms are present at the same time in the same subject. Thus, a little boy, aged one your and eight months, was under my care for tope-worm, from which he had been suffering for three months. This child, on one occasion, passed a large round-

worm and many joints of the benia in the same stool.

In the case of thread mores, the patient seldom complains of abdominal pair, but the irritation set up in the rectain by the presence of the cutoma gives rise to a troublescene itching of the fundament, which in sensitive children may cause an extreme degree of suffering. This irritation comes on towards the evening, and at night may be so distressing that sleep is greatly interfered with. In some cases, in addition to the atching shooting pains may be complained of in the same part. Cutarrh of the rectain is not uncommon in such subjects. There may be looseness of the baseds, and the examinious are often discharged with straining efforts. They may be followed by prolapse of the rectain. The stocks often contain glairy masses, and sometimes blood in streaks, or even clots of conscierable size. Difficulty in simplying the bladder may be a consequence of the irritation, and the child sometimes holds his water for many hours together. Bedsing of the more, a leaden that of the lower cyclist and aveiling of the upper lip, are also very common symptoms when thread-worms are present.

The worms are readily detected as white moving threads in the stools, and may be seen in the folds of nuccus membrane about the arms. They may pass or be conveyed into the ragins in little girls; and can often be discovered in the hed-clothes. A microscopia examination of the stools

usually discovers a multitude of ova.

The funderess, on account of its large size and its habits of nocturnal activity, is a couse of considerable irritation. This worm is said frequently to give rise to nervous discreters in the child; and cases have been recorded in which severe bendacine, photophobia, chorace movements, convulsions, and even profound come have ceased on the expulsion of a number of these creatures. It is difficult to say what share the worms take in the production of such symptoms. Probably some additional cause is in operation, for in rickety children, whose tendency to convolutions and other forms of nervous disturbance is one of the most characteristic consequences of that phase of general malnutration, I have not noticed that the presence of the long round-worm is especially liable to be accompanied by eclamptic witters. Probably, in most cases where nervous symptoms are associated with intestinal worms, the nervous disturbance is quite undependent of any irritation produced by the worms in the baseds. It is common enough for children who are suffering from undoubted discuss of the nervous centres.

to be infested with lumbrici. Thus, in cases of tabercular meningitis, one or more long worms are often expelled by the action of apericute; but it is needless to say that in such a case no ameliaration in the symptoms follows the expulsion of the purasites. So, also, ciribiren under my care suffering from choren have passed lumbrici, but I cannot call to mind a single case where any improvement in the disease has directly followed the appearance of the worm in the stocks.

If, however, the nervous symptoms supposed to be produced by lumbricitorist be looked upon as somewhat problematical, there are other phenomma which can be referred with much greater certainty to the irritation setup by the entozon. Severe abdominal point of a colicky clasmeter are not uncommon in children who suffer from these creatures; and looseness of the boxels, occurring chiefly at night, is occasionally produced by this agency. I have seen several cases of this kind where a discribes, after persisting for nearths, ceased immediately that the worm was got rid of.

A little boy, agod four years and a half, was said to have been troubled for three mouths with persistent looseness of the bowels. The purging was never very severe, but was always worse at night. The motions were said to be very slimy, and after a dose of oil, nearly contained thread-worses. The child often complained of colicky pain and tenesman. He had been slowly wasting from the time the purging first began. The occurrence of nocturnal looseness of the bowels, combined with the appearance of the tougue, which was very flabley, sliny, and drab-estoured, with large fungifiers papille at the sides of the dorson, made me suspect the presence of a long-worm. I ordered a powder containing one gram and a half of suntonine and half a grain of calconed to be given every night for three nights, and to be followed each morning by a dose of caston oil. After the first powder the child passed a long-worm, and the diarrhou coused from that time. He then rapidly regained fieth.

As a rule, lumbrici become artise at night, and may pass upwards into the stounch, or downwards into the colon and rectum. They have been known to issue spontaneously from the nameh of a child during sleep, or to appear from the bosed without being discharged in a stool. Their persence in the storach may goe rise to names and rebelling. Sometimes they pess into the common bile-duct and cause introdice, by obstructing its chantel. If jaundice impally developes in a child who is known to be troubled with this parasite, we should think of the possibility of this rare accident laying happened. Sudden desposes has been known to arise. In some instances, at losst, this has been discovered to be due to the actual penetration of the worm into the me-passages. Thus, Andral has known death to occur from this cause; and Arronsshon has reported the case of a little gurl, aged eight years, who, after suffering for two hours from distressing dyspous and cough, salderly, after a violent perceyan of rough, ejected a long-worm and was immediately relieved. In other cases, the difficulty of breathing has been attributed to direct pressure upon the laryax and trackes be a number of worms in the gullet, or to redex action, propagated from the intestine; but these explanations are neither of them very satisfactory. It has been so much the tendency to attribute every kind of discomfort asising in cases where worms are present to the irritation of the parasitic creatures in the bowels, that probably sufficient care bas not been always taken to ex-

Lumbriel are sometimes present in very great quantities. The largest number I have known to occur together in one child has been twelve; but they are sometimes much more numerous, and may even amount to several

risde other and less obvisors muses of the symptoms.

handreds. When thus multiplied, the worms may form bundles, which manufe the passage of the contents of the bowel, and are said in some cases

to give rise to the symptoms of obstruction.

The type-worse is often found in children and sometimes in infants.
One child who came under my own observation began to puse the joints at the age of lifteen months. Other observers have not with the worm in still younger subjects. These, however, are exceptional cases, but in other children, of five or six years and upwards, the affection is as common as it is in the adult. In these patients, little disturbance appears to be excited by the parasites. Pallor and loss of fisch are often complained of; but these samptoms, as in the case of the other species of parasite, appear to be due less to the worm than to the nurcous derangement of the bosed with which its presence is usually associated. Headache and discolaration of the lower systid also often occur, and may be attributed to the same catarrial condition. Often, however, the dispession remains good, and the child, except for occasionally passing segments with the stools, as to all appearance well.

Disputsion—No symptoms are to be relied upon in the diagnosis of

Programic.—No symptoms are to be relied upon in the diagnosis of intestinal worms. The only sign from which we can draw any positive inference, is the appearance of the creatures or their eggs in the stools. Therefore, if from any cause we suspect their presence in the borels, we should at core adopt appropriate treatment, and order the creations to be carefully searched for signs of the parasites. A microscopic examination of the matters discharged from the bowels will often discover the

presence of the ova.

Temperat.—With the exception of the famin, womes are usually expelled readily in young subjects; but it is less easy to prevent their frequent reproduction. In all cases where children continue to be infested for long periods with the oxyures or lumbried, the bowels will be found to be the seat of a chronic mineous flux. There can be little doubt that in such cases the ora holge in the abendant secretion and find in it a congenial medium for development. Therefore, in all such cases, the special means adopted for relieving the bowels of their unwelcome tenants what be componed with other measures for arresting the chronic derangement of the muccon membrane and restoring the intestinal const to a healthy state. These measures consist in the adoption of a careful dist, from which sweets and farinaceous matters are in great part excluded; in the frequent use of mild aperients to clear away mucus accumulated in the almost use of mild aperients to clear away mucus accumulated in the almost part of the subject is referred to observers (see page 127).

Threst-source are most effectually and easily removed by the use of susuata. For this purpose, lime-water, or an infusion of questia, or a solution of common salt (a test-specialid to four courses of water), may be employed. In using these agents, the bowel should first be cleared out by a copious injection of warm water. Afterwards, five or six courses of the special enems should be administered, and be retained for a few minutes by preasing the axes before it is allowed to samps. In obstinate cases, auttoria (one grain to a child of four years old) about he added tightly to a dose of the compound liquories powder or other mild aperient; and five grains of tartagate of iron, with one or two drackmas of the tempound decoction of aloes, diluted with water and sweetened by a few drops of spirits of chloroform, may be given two or three times a sky.

Locusticus of the bowels in these cases is readily arrested by a dose of

castor-cil. The necturnal itching may be greatly relieved by the application to the fundament of an ointment composed of equal parts of unguentous bydrangeri and lard, as recommended by Dr. It Liveing; or by the use of a sales made by rubbing up one drackin of finely powdered campbor with an ounce of lard. In all these cases, the greatest cicanliness must be observed, and after each action of the bowels the parts should be well mushed with soop and worm water.

In the case of fundered, santonin is especially indicated. The remedy is best combined with a dose of calonicl. Then, for a child of five or six years old, two grains of the foresee may be given with half a grain of the subchloride of mercury every night for two or three nights, and be followed each morning by a purgative dose of enstor-oil. Employed in this manner, the drug racely fails to bring away the round wome, if one of these centures is hidden in the borrels. Suntonin is a remedy which should not be given in too large doses. In some children it causes vomiting: in others at produces guidiness, with impairment of vision, so that all objects seem tinted with a green or yellow redour. Usually, it increases the amount

of urine and gives a yellow tinge to the secretion.

For children who, on account of comiting or other texic effect of the medicine, cannot take santonin without discomfort, some alterative reasely must be used. Cowlings (the hairs of the nurrum principles) may be prescribed in doses of thirty to sixty gmins, given twice a day in trende or glyrerine. Dr. W. Boe speaks highly of the sulphites, especially the bismiphite of sola, and recommends ten or fifteen grains to be given three times a day in water sweetened with spirits of chloreform and flavoured with uncture of sunge-peel. Neither of these remedies has any laintive setton. Each should, therefore, be always followed by a purgative dose of aloes, some conston-oil, or other mild aperient. Oil of turpentine is another useful vermitage. It can be given in a norming dose of two drachms (for a child of six) combined with an equal quantity of castor-oil.

It is not advisable, in ordinary cases, to continue the use of anth-limintics if the first doses have been given without effect. It must not be forgetten that all the symptoms of norms (i.e., of irritation of the bowel) may be present although special remedies full to produce any sign of the crustures in the stools. If, therefore, after a few trials, no lumderess is discovered, we should attribute the symptoms to the general intestinal derangement, and take the necessary steps to bring the disorder to an

cud

The successful trentment of inposecors in the child is often a matter of no little difficulty. Probably the softer nuccess membrane in the young subject adapts itself more readily to the action of the suckers than is the case in the adult, for in my experience it is comparatively rare for the head to be discovered in the exacuations. The joints can be readily expelled, but the head too often rensains behind. In all these cases, great rare should be taken in the examination of the stools. All the visible joints should be first removed. The fixed matter should then be diluted with water and susptied aloudy from one result into another, with every precention that the liquid socreta is thoroughly searched by the eye as it passes over the side of the intensil. The sediment remaining should be then again diluted and strained through a fine sizes. By this means, the bend, if it have passed from the bowel, can sourcely escape notice.

Various kinds of vermifuge are relied upon in the treatment of these parasites. Kousso, kansala, filix mus, turpentine, and a decoction of the fresh bark of the ponegrapate root have all their advocates. Filix mas, which is the favourite remody for the adult, is uncertain in the case of children. For young subjects, it is best combined with kanada. A deaching of powdered formula is made into an emulsion with mucilage, and then triburated in a mortar with a drackin of fernoil, adding water slowly to mike a three-course mixture. It is important that the remedy be given fasting. The child should be allowed to take nothing but a little water after his mid-day dinner. The drought should be given on the following morning, doubled into two portions, of which the second half most be taken at an interval of three hours after the first. Kancola loss an operiout action of its own. This method of treatment, therefore, seldom requires the anistance of a purgative, as is necessary in the case of male fem-oil given abus. After the two draughts have been smallowed, the patient should still continue his fast until the worm comes away in the stool. I have forma children bear this method of trenament well, and it is often effectual. If the draught excite vomiting, it should be repeated, percelled by a small dose (# ij-ug) of landamum to quiet the irritability of the stomach.

Kouse is preferred by some. The remody is given in desce of two or three drachms divided into two portions, and given at an interval of half so hour in milk. The draught should be taken in the early morning, and should be followed in an hour after the second dose by a spoonful of enserged. The principal objection to this method of treatment is the large quantity of the drug which it is necessary to swallow in order to produce any attractory effect. The same objection applies to the describin of pomerriants back. If these remedies fail, torpertine should always be tried. This oil may be given in one large dose, or in smaller quantities frequently repeated. In the large dose it may be alternistered as recommended for the lumbricus. In smaller quantities, Dr. H. Davies recommends half a drachm to be mixed with honey and given in a draught with mostlege and under every six hours. Every second morning he orders a powder of

calonel and the compound scanmony powder.

In all cases where there is much decongressent of the bowels, and large quantities of mucus are passed in the stools, a rigid dist, from which sturiny matters and sensets are carefully excluded, should be enforced for at least a work before the special treatment is undertaken. This precaution greatly

increases our chances of success.

Part 10.

DISEASES OF THE LIVER.

CHAPTER I.

JAUNDOUS.

Juranous is common in early life. This symptom may be found in children as a consequence of the same causes which produce it in the adult. There is in addition a special form of jaundice seen in new-born babies which is called interes accountries. It will be therefore convenient first to describe journice as it occurs in the new-born baby, and afterwards the symptom

as it is met with in older children.

Atterns accomprome, or infantile journilies, must be distinguished from the yellowish discolouration of the skin which succeeds in many cases to the intense cutmeous congestion of the first few hours or days of life. This staning is not dependent upon the secretion of bile, and is not a jaunchies at all. It does not colour the conjunctive or the urine, but resembles the staining of the skin which follows a sutaneous braise. The face of the child who is born after a difficult or techous labour, is often at first deep red, with a tinge of violet; and the skin over the body is coloured with an erythematous reduces. At the same time, or soon after, pressure upon the surface sufficiently firm to empty the blood-tessels shows a yellow tint of the skin. As the redness fades, the yellowness appears to increase, and soon remains the sole discolouration. Beginning, as a rule, on the second day, it nemafir persists for about a week, and is estomoutly over by about the tenth day, or a little curlier, although in excepts and cases it may last larger. By some writers, the term solerois arounforms as confined to this false jumilies, and the same authors apply the mone interns infantion to the true discuss. This practice is calculated to give rise to unnecessary In the following pages the terms interns neonatorum and ictorus infuntum will be applied indifferently to indicate a staining of the skin by the pigments of the bils.

Bent exercise manifests itself in the child as it does in the adult, by a yellow that of the skin and conjunctive, light-coloured stools, and often by discolouration of the urine. It may be the result of some comparatively triffing derangement, and is then readily recovered from ; or may be the consequence of a serious multiculation or grave organic besion, and is then

almost invariably fatal.

The milder form of jumdise—which may be called the benign variety—appears to be predisposed to by difficulty and delay in the process of parturition. A first-born child, exposed to serious and prolonged pressure before birth, and who, in consequence, is born in a state of semi-applysis, is often found to become jampliced. Again, according to Kehrer, presistant birth, or other cause of weakness in the infinit, is apt to be followed by the same result. Exposure to cold and damp, and, according to

Some waters, a vittated atmosphere, can also produce it.

Many theories have been advanced to account for the frequency of this symptom in the newly born. Virehow attributed it to a duodenal caterria, and plogging of the common duet with mucus; and in children who have been exposed to cold this is no doubt a common cause of the deringement. Frank thought it was the consequence of an accumulation of mecanism. Columbian believed it to be due to a sudden increase in the title accretion after birth—an increase too great for the bits-duets to carry away; but he has advanced no evidence in support of his theory. Many enters have referred the symptom to the disturbance in the hepstic circulation consequent upon the clustice in the conditions of life incident to birth. The circulation is too full, according to Henritt and Weber, so that the distended vessels compress the bile-ducts; it is too supply, according to Frenchs, the circulation through the embilical vein being suddenly cut off, and the tension of the hepstic capillaries diminished, so that the second

creted bile malow the way into the blood-records.

There can be no doubt that the solden transference of the chief supply of blood from the umbilical to the portal vein must at first produce considerable disturbance in the hepatic circulation. Weber has pointed out that if the functions of the unbilied you are arrested before the establishment of rengination, as when a child is been partially asphyxiated, great congestion and orderns of the liver are the consequence. Birch-Hirschledd has shown that the vessels in the notch of the liver are surrounded by a dense layer of connective tissue, and that this areolar shouth a continued into the organ along the branches of the portal win. He his noted that in cases of difficult parturition, where the liver is the scat of great remous obstruction, this areolar sheath is ordenatous. It becomes pulsy and gray in colour from infiltration of fluid, and a great accumulahim of round cells takes place into its meshes. This pulpy condition of the pellular layer is seen also around the umbiling vein, and may even extend into the gall-bladder. It is evident that the swellen tissue must compress the bile-ducts, and Birch-Hauchfeld has shown that this is settally the case. The bile-ducts are distended, and it is difficult to force bile out of the gall-bladder into the durslemm. In these cases he has deheted only signs of joundies where death has secured during the first die and reports cases in which life half been further prolonged with a gradual increase in the interio symptoms. In these mild cases, the preseace of the bile-pigment cannot be always demonstrated in the urine; but, according to this authority, the bile acids can be detected in fatal

When the interns is a consequence of the condition above described, it is achieve very severe. In the mildest cases the conjunctive are only fainfly tented with yellow; the appearance of the urine and the methons is sormal; and the staining of the skin is only noticed on the face, the front of the chest, and the back. The decongenent is then only a passing one, and the skin resonnes its natural colour in three or four days. In a higher degree, the yellowness may extend to the belly and upper arms. The con-

junctive are vellow; the urine is high-eccoured, and strins the lines; but even in this case, the stools may retain their normal tint, which at this age is naturally a golden yellow colour. In this degree, the symptoms generally last a week. In other cases, the journice is general, and may insolve even the hands and feet. The urine is then distinctly interio; the conjunctive are very yellow; the team are tinted with bile, and the stools are clay-coloured. In some cases, Seux has noticed an ophthalmin to come on a few slays after the erset of the jamelice, with a copious and deeplestained puralent secretion. As a rule, the child seems to suffer little inconvenience from los denargement. He takes his food wall and has no pain. Often, on palpation of the belly, the liver will be noticed to be incrossed in sur, and the lower border may be felt at the level of the unbilicus. It is carious that, although the mine is coloured yellow, the most sarvful examination of the water as unable to detect the presence of biliphsin. MM Parrot and A. Robin have, however, discovered in the icteric urine vellow amorphous irregular masses, surving in size from a red blood-corpuscie to a vesical spithelium, and differing in chemical tests from the relouring matter of the bde. They have also noticed the presence of sediments containing unic seid, unde of soda, and oxalate of lime; hyaline, epithelial, and fatty exlinders; white globules, and cells from the minuty passages.

When death occurs in infants who suffer from this benign form of journitive, the fatal termination is owing usually to other causes. There is a variety of the complaint, to which attention has been directed by Seux, where the interus is accompanied by all the symptoms of intestined extents—distribute, a quick pulse, and some heat and tenderness of the belly. There is however, murely vomiting. In the favourable cases the diarrhous causes before the joundace disappears. If the losseness of the bowels persists, it is a dangerous derangement at this early age, and the infant often

dies.

Although usually a symptom of comparatively little asoment, ickers neconstorum may be the indication of very serious disease. The grace form of jamutice may be the result of three different conditions. There may be a congenital malformation of the gull-duets; the ducts may be compressed by symbilitic inflammation and growth (the symbilitic perhylephicities of Schappel); or the interns may be the consequence of umbilical phishitis

and pyrania.

Infantile jurnifice from atresis of the bile-ducts is fortunately not a common disease. Several varieties of uniformation have been recorded: the call-duct has been found converted into a fibrous cord; the common duct has been known to be obliterated, or absent, or excessively narrowed; sometimes all the ducts have been wanting; in other cases, the gull-bladder has been radimentary and the ducts absent. The liver itself is normal in appearance, or greatly enlarged; usually, it is of a deep olice or nearly black colour. It has also been noticed to be cirrhotic, and its substance has been found to be denser than natural. The microscope shows an avergrowth of the arcolar tissue, chiefly in the expends of tilisson; and broad bands of connective tissue arround the dark green islets of livercells. This incipient cirrhosis appears to be a constant accompaniment of childeration of the hile-ducts, and continues to advance as long as the cichl survices. In animala ligature of the ducts has been shown by Dr. Wickings Legg to lead to marked hepatic cirrhosis and consequent portal congestion.

This rare and distressing form of mulformation is sometimes found to

after several children of the some parents. This tendency to appear in successive children of the same family was noticed by Cheype in 1801, and has been commented upon by other writers. The journice to which retention of the secreted bile gives rise may be present at birth, but usually is not visible before a week, a fortnight, or even longer. When it first expens, the discolouration has a faint yellow tint, but the colour gets quickly darker. The conjunction are yellow; the stools soon become columness and offensive; and the urise is high-coloured and leaves yellow or greenish brown stains on the disper. At first, nothing abnormal is noticed about the bally; but after a day or two the liver begins to enlarge, and may reach a great size in a short time. The spleen may be also felt to be larger than natural. There is some swelling of the belly, and ascites my be present; but the abdominal distention is usually due to the incresso in size of the hepatic and splenic viscous, and to flatulent securedation resulting from the decomposition of food. Dr. Wickham Legg mentions swalling of the hymorrhoidal veins among the occasional symptoms. The child usually takes food well, but wastes quickly. The bosels are after costive. The jumbles is not constant in degree. The tint of the skin varies, and on some days the infant is much more deeply stained than as others. Before death, in some cases, the abnormal colouring almost completely disappears, as very little bile is formed, owing to the destruction of the secreting tissue of the liver. The stools do not always loss colour very rapidle; sometimes for days, or even weeks, meenium or coloured stools may be emounted; but the colour is usually described as a dark green, and is due possibly to altered blood.

A frequent symptom of this congenital defect which demands especial stiention, is hemorrhage from the morel. This phenomenon is not a constart symptom, but occurs in the majority of cases, and is of very serious sagary. The inconcernage generally begins a few hours or a day or two after the fall of the myel-string (most commonly between the fifth and the ninth day after borth), and usually occurs first in the night. It is not a sident blooding. Blood occas gently but continuously from the umbilious. It appears to be capillary, and the colour may be bright red, or dark and senous. This form of bleeding may be combined with harmorrhage from other parts, such as cutaneous erchymoses, epistaxis, humantenesus or releas, and blooking from the mouth. The hemorrhage, combined with the interference with digestion due to the absence of bile and impaired action of the liver, rapidly exhausts the patient; and he neally dies witha the week-often in a few hours. Dr. Legg suggests that the umbilical henorrlage is a consequence of the cirrhosis and resulting portal congration; for the blood is hindered in its passage through the liver, and is forced to mak some other way of escape. It therefore passes from the left portal win to the ductus versous, and thence to the umbilious, where the travels, newly closed, cannot resist the increased pressure, and give way. The are mechanism (portal congestion) will explain the frequent coincidence of humorrhage from other parts emplying the portal vein with blood.

Cases of jumidice conjoined with umbilled homorrhage are rapidly field.

When this symptom is absent, although the child almost invariably dies,
ide may be preserved for a much longer period. Recorded cases show
that the infant may live firs, six, or seven months, and even then, as in
Letze's case, where the child lived into the beginning of the eighth mouth
and died of a bronche-presentation, may encount to an accidental complication. This malformation is said to be twice as common in boys as it is

is pirks-

A male infant, deeply journileed, aged three months, was brought to the out-patients' room of the East Lendon Children's Hospital and was at once admitted by my colleague, Dr. Radeliffe Crocker, into the wards. The child was born of healthy parents none of whose other children had been similarly afflicted. He was said to have been a robust, healthylooking infant at birth, and shortly afterwards to have passed two dark stools. Since that time, however, his motions had been hard and white, like lumps of chalk, and the bowels had acted only once a day. The jumpdice had first appeared when the child was a week obt and has progressively increased. The infant had been suckled for a month, and was then fed on Swiss milk. He often vomited, not always after taking food, and was exprisions about his bottle, sometimes refusing to such. His water had

always been shork, leaving yellow stains on the shaper.

When admitted, the child was fairly nourished. His skin was deeply journiced, and his conjunctive were yellow. There was a popular emption (strophulus) all over his loody. The liver could not be felt at this time on account of the child's struggles, but was found a few days afterwards to project two fingers' brandths below the rule. The boy lived a month after his admission, wasting gradually, and often crying as if in pain. Then aphthe appeared in his mouth, and he sunk and died. There were no hemorrhages. His jumblice persisted, although it varied enricestly in intensity; and before his death the tint of the skin was several shades lighter than when he entered the hospital. The liver remained about the same size and felt firm and smooth. The spicen was not enlarged. After death the liver was found of a dark olive colour, and its consistence scened to be increased. The gall-blabber was redimentary, and the bepatic and common ducts were absent.

When apphilite enformation of the liner gives rise to jumifice, the organ is enlarged and deeply coloured of a brownish yellow test, and shows under the microscope a great proliferation of young cells in the capsule of Glisson, and in the interlobular spaces. In a case recorded by M. D'Espire, of Geneva, the same proliferation was noted round the legatic cells in the interior of the lobules. Moreover, the small bile-ducts were thickned and filled with epithelial cells. There was no obstruction in the larger ducts, and the gall-bindder contained thick and dark-coloured bile. The spleen was greatly enlarged and very firm.

In this case the jumbles was severe and appeared at birth. On the ninth day bleeding occurred from the mubilicus, from the bowels, and into the skin; the bully swelled; the liver and spleen were notably sularged; the temperature became subnormal; the child wasted rapidly, and died on the twenty-third day in correlations.

Jumifice from unfalled philohole has been called by Schuller "leteres meligious." This variety appears to be dependent upon an infective process. The possessors matter is probably the same as that which makes proceparal fever in the mother, and may be conveyed by bacteria, for two focus of micro-organisms have been found in the blood of infants so affected, the one spherical and the other rod-simped. Whether these two different forms imply two different kinds of infection is not known, but Eucli-Hirschfeld neserts that the rod-shaped bacteria are especially observed in cases where the general infection is source and the disease violent from the first, with a strong tendency to homograps. These cases are accompanied by inframulation of the umbilical artery, with or

without phiebitis of the unhilical win. In strip cases collected by this observer, unhilical arteritis was found in thirty-two, unbilled phiebitis

in eleven, and inflammation of both vessels in three. An examination of the liver reveals profound degeneration. These changes seem to indicate that the infection must reach the liver by the umbilical vein. They may, however, be found in cases where the artery alone is actably discussed; but there are reasons why the merical appearances should be more conspicuous in the ambilical artery. After both, the remnant of the ambilical vein is alternately empired and filled again on account of the marking presence on the hepsite tensels induced by the action of the heart and imps. This constant flax and reflax in the vain tends to promote infection of the system, but is unfavourable to the local development of the morbid process. It is found in these cases that the intensity of the joundice bears no relation to the severity of the vascular inflammation, but that it is in direct proportion to the degree to which the publishment on the liver. It is probably, therefore, the consequence of the swelling of the connective tissue surrounding the portal vein and its branches in the liver, which compresses the bile-ducts.

In these cases, the jaurelice comes on a few days after hirth, and by the end of the week is well marked. The urine is intensely rellow; but the stools may be of normal tint, although usually costive. The onset of the jaurelice is accompanied so quickly followed by fever, which soon because high. There is often vomiting of vellow or greenish matter. The child looks excessively ill. His face is livid, with pinched, haggard features, and he refuses the bottle or the breast. His tongue is dry; his lands and feet are purple; his abdomen swells and is tender; fluctuation, more or less distinct, is noticed; and blood or blood-stained pus come from the tree! Sametimes the sphere enlarges, and petechies are noticed on the

skin. Death may be preceded by convulsions and coma.

When joundice occurs after the age of authory, it is due to the same cross which goes rise to the symptom in the adult. Of these, no doubt, ductional catarch catending into the bile-ducts is, of all others, the most frequent. On this account, the symptom is usually a trifling one, and is quickly recovered from. It is accompanied by some temporary enlargement of the liver, which can be felt to project several fragers' breadths below the ribs; but except for some delicacy of digastion, little discomfort is experienced. In exceptional cases, the derargement may be the consequence of plugging of the common duct with inspisanted bile, and this accident has been noticed in an infant of three months old. Again, a hazbriens has been known to penetrate into the common duct and produce such impediment to the flew of hile as to give rise to jamidies. Interns. may be also due to acute yellow atrophy of the liver; but this is fortunately a very rare discuse in childhood. Of other causes, atrophic circhosis of the liver, phosphorus poisoning, and missuratic influences have been recorded as producing jurndice in early life.

Disposes.—In examining a new-born infant for signs of jumilion, it is often accessary to force the blood out of the skin by firm persons with the finger before the natural tint of the integument can be observed. In tespecting the eyes for yellow staining it is advisable to use no force in attempting to open the falls with the finger, but rather to wait until the child opens his eyes spontaneously. A baby, when the syclole are treached, squeezes them together instinctively. In such a case our utmost efforts will often encosed only in exposing the pulpebral mucous memberse, and

this will quite conceal the globe of the eye from view.

The diagnosis between false jumilies and true interns necessforum, if the latter be of the benign variety and little pronounced, is very difficultoften quite impossible. In neither case is the conjunctive stained or the urine yellow. The colour will sometimes help us, for the tint of the jaundiced skin is often more distinctly yellow than the brownish stain left after severe cutmeous congestion. In all cases where the conjunctive and urine are tinted, however slightly, we may conclude that the case is one of true jaundice. The condition of the stools is of less moment, for jaundice

may be present without the motions being clay-coloured.

In cases where the jumilice persists and becomes deeper and deeper, we have every reason to suspect the existence of some congenital malformation, especially if a previous child of the same povents has ched shortly after birth with symptoms of interus neonatorum. If the liver and spicen become enlarged, the temperature remaining low, this suspicion becomes almost a certainty; and the occurrence of bleeding from the movel is, in such a case, practically conclusive. The partial disappearance of the jumilice is no proof that our apprehensions are unfounded, for the yellow text of the skin may become distinctly lighter, or even quite disappear before the end.

The payers form of jamelice is readily detected. The general appearance of the cirkl, the high temperature, the dry tengue, the swelling and tenderness of the belly, the discharge of blood and pas from the ambilicus, and the early death, sufficiently indicate the nature of the disease.

If the jamidice as accompanied by signs of inherited syphilis or if, without these, we can discover a history of syphilis in the father, or of previous miscoverages on the part of the mother, the probability of a

syphilitie origin to the jumdice must be taken into consideration.

Propersis.—So long as the jaundice is accompanied by no signs of disconfort, little anniety used he excited by the symptom; but if diarrhous or vaniting occur, the injurious effect of exhausting discharges upon a newly born infant must not be overlooked. Little information is to be gained by inspection of the stools, for in cases of aerious malformation they may remain normal in appearance for a considerable time. If, in any case, the motions become clay-coloured, and the strinning of the skin and arine shows no sign of subsiding, there is cause for apprehension. A slight enlargement of the liver (i.e., a projection of one farger's breadth below the ribs) is immaterial; but if the organ continue to increase in sea, and if the sphere also begin to swell, the infant's condition is becoming a serious one. It must not be forgotten in these cases to examine the arms; for the appearance of any swelling of the homorrhoodal vene, as indicating great obstruction to the portal circulation, is an unfavorable symptom of no little importance.

If we are satisfied that the case is one of congenital definioncy or malformation, we can have little hope of a favourable issue, although life may be prolonged for several mouths. The appearance of unbilical homorrhage is a very fatal sign, and is usually followed by rapid sinking of the patient.

If the jamelice is due to applifitte disease, it is furtly likely to end otherwise than unfavourably, and in cases of umbilical philabetis and

pyrmin, we can hold out no hope of recovery.

In older children, interus, unless it be due to phosphorus poisoning or some profound hepatic lesion, is in most cases a mild derangement which

ROOM DISSESS STORY.

Treatment.—Ordinary benign jaundice in the new-born haby requires little treatment. Executes, although strongly recommended by some writers, are in most cases useless, if not injurious. A gentle purge, each as castoroil, followed by two or three grains of bicarbonate of soda with a quarter at a drop of fineture of nux comics, given three times a day, will soon posture the child's tissues to their natural colour. I now invariably give nux. version with an alkali in these cases, and believe that in countries jumplice at all ages the former drug has a distinct influence in adding the slabl's processy. If purgatives are prescribed, the aperients used should be those which, like custor-oil or slows set low down in the alimentary canal. Serma and other drugs which influence the shadenum and upper part of the lowels may increase the irritation of this part of the intestine, and are unenitable to cases of jamslice-at any rate to those cases where there is person to suspect the existence of deoderal enterth. Mercurials, too. should be given with judgment. It is not advisable to continue acting upon the liver by repeated doses of mercury. One dose of gray powder or of calonel may be allowed, but the remedy need not be afterwards repeated. With regard to slict :- The infant may still continue to take the broad. If he be bettle-fed, no alteration peed by made in his food miless togiting occur with signs of acid fermentation. If these symptoms of gastric enterris are noted, the dist must be regulated according to the rules had down in the chapter on Infantile Atrophy.

If the journhoe be due to malformation, no treatment can be expected to be of service; but if homorrhage occur from the navel, attempts should be made to arrest a symptom which experience has proved to be so specify fatal. The psychloride of iron may be used locally, followed by a compass; but in most cases, the surgeon has to fall back upon the operation anown as the "ligiture on masse." The child should be had upon his lock, and two hare lip pins must be passed through the integrances at the root of the navel, carefully avoiding the personeum. A ligature is then twisted

lightly round the readles in the form of a figure of eight.

If applies be present in the child, treatment for this constitutional conizion should be adopted without loss of time. In cases of pysmic jamdies, attempts must be made to retires the distressing symptoms. Warmth should be applied to the belly; and if there is great tendernous about the sublican, extract of belladoran diluted with an equal quantity of glycerine, can be applied to the skin round the navel. Stimulants must be given as required.

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CHAPTER IL.

CONGESTION OF THE LIVER.

Comparator of the liver, although a common derangement in the child, is yet often suspected when not actually present. Many symptoms attributed to a "torquid." "inactive," or congested liver, and treated with gray powder, are really due to a discordered state of the storaged dependent upon an improper distary, and may be really relieved by the coercise of a little judgment in the child's food and general management. A liver mortally congested gives rise to a very definite group of symptoms, as will be afterwards described.

Counties.-The amount of blood circulating in the liver may vary considerably within pormal limits. During digestion it is increased for the time; and if the child be labitually overfed, or be frequently induled with highly spiced and stimulating food, the hyperemia lasts longer and is more intense than if he cut more moderately or of a planer diet. Want of exercise and too close confinement to the house will increase the injurious effects of this unwholesome regimen. The other principal comes of morlist congestion of the irrer are - Any cause which interferes with the return of blood from the liver. The commonest of these is discuss of the heart interfering with the return of blood from the lungs. The pulmonary circulation suffers primarily; and secondarily, the impoliment spreads to the rena carra and the portal vein. Congression of the liver is also a consequence of the ague poison, for malarial fever is as common a cause of hepathe congestion as it is of spicinic enlargement, and a swedien hypersemic liver is a familiar symptom in tropical climates. Again, challing of the surface is one of the most frequent agents in the production of liver congretion, and enlargement of the organ from this cause is a usual accompaniment of eatarrial jamalies.

If root dealers, —A congressed liver is enlarged in all directions and is very thick; its resistance is increased, and the peritoneal cost is tense and staining. When cut into, the organ bleeds freely, and the section shows a spotted or "natureg" surface from dilatation of the introducing reins. Often, the colour of the purently masser rounding the central vein of the locale is yellowish from interference with the escape of hile from the ducts; for jaundice is not unfrequently associated with this hepatic congestion.

If the hypercenia of the organ is a chronic condition, further charges take place after a time. The enlargement of the intra-lobular begatic verifications atrophy of the liver-rolls in their immediate neighbourhood. Surrounding these cells are others which are stained deeply with late, and at the circumference of the lobule the cells are often filled with oil. The atrophical cells may completely disappear; and eventually a new formation of fibroid tissue takes place in connection with the inter-lobular vessels. The fibroid growth shrinks, and a condition akin to circhous is set up; the organ becoming granular on the surface and the capsule thickened.

Sampleson - If the liver be much congested, we generally find that there is some pain in the right hypochondrise region; that it is tender when pressed; and that coughing or a deep inspiration is distressing. The child a after unwilling to be on either side-on the right because of the direct pressure; on the left because of the weight of the congested organ country an anemay dragging sensation. On palpation of the felly, the edge of the four is felt several fingers' broadths below the ribs, and on percussion we generally find that the upper limit of dulness, instead of beginning in the fourth interspace, begins in the third or on the third rib. Sometimes, esperially if there is journier, the distended gull-bladder can be felt as a pourdaped tunour below the inferior edge of the liver.

Despeptio symptoms from hypermania of the gastric systels generally accompany a congested liver. The tongue is forred; there may be headache; names may be complained of; the bowels may be relaxed and the stools light-coloured and offensive. The urine is dark, and may throw down a regious deposit of lithates. The skin is often sallow, and if the congestion be accompanied by duodernl enturn, there will probably be jurnalies.

If the congestion is due to curding discuss the child is hurassed with typnos and rough from interference with the palmonary circulation; his direction is deranged, and there is often, in addition, ordens of the lower

limbs, with albummaria.

A congested liver is, as has been said, frequent in cases of ague-Offen, until this condition is remedied, quincie has but little influence over

the attacks. This subject is discussed clsewhere (see Ague).

Disgrosia - A congested liver is increased in size, and pressure upon 2 produces some uneasuress. Mere light-coloured offensite shools are not in themselves a sign of hepatic hypersonia. It is common for a child who is being fed upon large quantities of farinsceous food, or who, owing to a estartial condition of his stomach and bowels, is for the time inequable of digesting a milk dist, to exacuate more or less semi-solid pasty or putty-He mitter from the bowris. But the stocks in such a case consist of undigested food, and are not indicative of arrested bilingy secretion. If such a condition be treated, as it often is, by repeated doses of gray powder or other form of mercurial, the aperient action of the medicine produces on each scenaion a dark biliary stoot, but the effect of the drug having pussed. of the execustions continue to be as pasty as they were before. This condition, as is elsewhere explained, must be treated, not by chologogues, but by measures which rectify the gastric and intestinal derangement (see p. 640).

To justify the diagnosis of hepotic congestion we must require enlargement and tenderness of the liver and a saflow complexion, as well as digestime distractionce and light-coloured stools. We must not, however, conclade too learnly that the size of the liver is abnormal. The cegan is apt. to easy in size in young subjects from natural causes, and in some children whose chests are exceptionally short may project for a finger's brendth or so below the ribs unbout being congested or otherwise discused. Besides, it is important not to mistake a liver merely displaced for a liver markedly enlarged. The organ may be pushed down by fluid accumulation in the pleurs, or by emphysems of the lung; and I have known an extenare pericuralish effusion to produce the same effect. In rickety children with deeply ground chests, the liver and spleen, although not enlarged, mer be felt more distinctly than natural, being forced downwards somewhat from their original position. It is therefore important to assortain by porcussion the upper limits of the livey dulness as well as the exact lovel of the inferior margin. Again, a liver, although enlarged, may lie

completely under cover of the ribs, and its abnormal condition may thus escape notice. It may be pushed upwards for fluid accumulation and growth in the helly; or may be placed higher than it otherwise would be through the shrinking in the chest of a collapsed or industed lung. Therefore, in an examination of the segan, we must remember these sources of error, and accertain all its limits before coming to a conclusion.

A good example of a congreted liver is seen in the following case: A little boy, aged three years, of healthy parentage, was brought to the East London Children's Hospital with the history that for five weeks he had been noticed to be languid and chilly, with little appetite and with some seedling and tenderness of his belly. The bowels had arted two or three times a day, the motions being light-coloured, thin, and sensity. The shill was restless and fretful, sleeping unessity, and often starting and twitching in his sleep.

The boy was the subject of moderate rickets. His ribs were booled, the ends of his long bones large, and his chest was flattened laterally. He had out all his teeth and his featurelle was closed. The skin was harsh and dry, and was tinted all over the body of an earthy vellox colour. The belly was large, and the lower edge of the liver reached to nearly the level of the umbilious. Its substance was natural, without any increase in firmness. Its edge was not thickened. The spiece could not be felt.

The patient was treated with mercurial purges followed by salines, and an alkali with bifter infusion was given to him three times a day. In a fortnight after this treatment had been begun, the lives had become much reduced in size. Its upper border was at the fifth rib, and its lower border could be felt two impers' breadths below the ribs. It was evidently pushed downwards by the rickety deformity of the chest, and was no doubt now of ratural size. As the liver became smaller, the child's appetite improved; his skin limits earthy yellow tint, and the colour and consistence of the stools because natural.

In this case, all the symptoms pointed to congestion of the liver; and polipation of the belly detected enlargement of the organ without any alteration in its consistence.

In worm climates, it is important to exclude hepatitis. In supportative inflammation of the liver, the pain and tenderness are greater than if the liver be merely composted; the peneral distortance, although considering the serious rature of the discuss proportionally alight, is greater; the child looks ill, which is not the case in uncomplicated congestion, and there is force.

Progress.—Congestion of the liver is in uself a triffing silment. Any danger connected with the case is dependent upon the general condition of the child, or the existence of serious disease of a vital organ.

Treatment.—If the congestion is dependent upon overfeeding and insufficient exercise, we should be careful to regulate the diet, and allow only
food which is dignetible and unstimulating as well as moderate in quantity.
The child should be restricted for a day or two to bread and milk with
matten-broth or a lattle boiled fish for his dinner. His belly should be
protected by a thread band, and the action of the skin should be promoted
by a warm both before going to led. The medicinal treatment should
begin with a few grains of gray powder combined with half a grain of
powdered specucianha and two to five of pilapins. This should be given
at bedtime, and in the morning the shald may take a dose of liquid
imagnesia or other value specient. Bemedies which not upon the skin
and kidneys are useful in these cases. We may give two or three times a

May a mixture composed of solution of acetate of ammonia, sweet spirits of ratre, and a few grains of the becarborate of sods or potash. Chloride of minimism (gr. ii) to gr. vi.) is also recommended. It may be made palatable by extract of liquorice, chloric other, and glycerine.

The same treatment is useful if the hepatic congestion can be attributed. to a chill. In these cases, especially if there is jaundice, we should be cureful not to employ seems and other purgative drugs which act principally upon the upper part of the intestinal canal, in order not to increase the irritation of the deodenum; but should keep the bowds regular by aloes or the siline openionts.

If the congestion of the lives occur as a consequence of heart discase, it will be relieved by measures directed to strengthen the cardiac action and lessen the general hypersensia from which the patient is suffering. If it arise in the course of an attack of mularial fever, it must be reduced as

rapidly as possible by saline and mercurial purges (see Ague).

Children who are habitually indulesed and injudiciously fol, especially if they are accustomed to warm stuffy rooms, may suffer from frequent attacks of hepatic congestion, and their livers may seem to be permanently enlarged. In such cases, it is useful to send them to a watering-place where they can drink regularly of some natural saline openient, and take daily and sufficient exercise in the open air. After a short course of the waters, from and quinine can be given with benefit.

CHAPTER III.

CERRIORIS OF THE LIVER.

Consecut of the liver, although not one of the more common diseases in the child, cannot be said to be very rare. In some challren, even at a very early age, there appears to be a peculiar tendency to the formation and proliferation of filterial tissue. Sometimes the fibroid overgrowth is a general one; sometimes it is more local, and is limited to particular organs—the langs, the liver, or the hidneys. Filterial information of the langs occurring as a result of external preumonic and pleasing, is a sufficiently familiar experience; but a similar pathological change in other internal

organs is much less frequently met with,

Countries.—The causes of hepatic cirrhosis in early life are obscure. Intemperance in alcohol, to which the disease in the adult is essally attributed, is of course exceptional in the case of a child. It is possible that, as some writers are disposed to believe, this vice may be one of the aims of the fathers which are visited upon their offspring, and that circhosis in the child may be due to intemperates in the parent; but this, at present, at any rate, is no more than hypothesis. Congenital deficiency of the bisducts is oben-always, according to Dr. Wocklam Legg-accompanied by an early stage of hepatic circhosis. Syphilis may sometimes produce it; and MM. Corall and Ranvier have described an interstitial hypotitis as accompanying cases of general tubesculosis. Hepatic circlesis has been seen at a very early age. Weber has found the strophic form in a new-born infant; and in cases of mulformation of the bile-ducts, it is always an early change, as death usually takes place in the course of a few months. The hypertrophic form is sometimes, also, met with in very young children. Wattergren has seen it in a boy of five; and Dr. S. West has reported a case in a loy of six. It is eurious that in each of these instances the child had been in the habit of drinking largely of coffee.

Marbid Assatosay .- Circles is of the layer may be atrophic or hypertrophic,

and these two conditions have very distinct pathological characters.

In alrephic cirrhesis (the hobitalled liver, cirrhesis of Lacannec) there is abnormal development of new fibroid tissue which permeates the ergan, following the brunches of the portal win. The new development appears to originate in a chronic inflammatory condition of these vessels. It produces great thickening of the capsule of Glisson, the prolongation of which envelopes the portal branches, and extending from it into the interbolular spaces, focus meshes which endurate portions of the hepatic substance. These portions vary in size, but all comprise several lobules. The process tomasts in a rapid proliferation of embryonic cells which undergo conversion into ciratricial fibroid tissue. After a time, contraction takes place in the new material, and the liver becomes small and shrunken, with an irregular gesmalar surface and a dense substance. Its enveloping capsule is

much thickened. On section, the surface is of a dirty vellow colour, and is seen to be divided into irregular meshes by the filmous network.

The contraction of the dense interstitial tissue compresses the lobules so that the liver-cells become flattened and strophied, and causes great obstruction to the portal circulation. Consequently, the whole portal system is congested. Its blood, unable freely to escape, has to find a new channel; and a collateral correlation becomes gradually established by enlargement of the principal veins in the enspensory ligament passing to the umbilious.

The matrition of the liver, and the formation of tole, are kept up by the dereligionst of new vessels, which perments the new filteress tissue and convey blood from the hepatic artery to the intra-lobular sensels. The smaller bilsary ducts are but little affected by the changes which take place, so that there is soldon retention of bile or jamalice. In this form of cirrhois, the organ is somewhat enlarged in the early stage, but afterwards becomes very

small and contracted.

In Assertrophic currhous, the liver is usually larger than in health, and may be increased to twice its natural size. It is smooth on the verface, with a normal thin edge, and on section, its substance is orange tellow or green in colour. The fibroid overgrowth in this case follows the ramifications of the biliney ducts. It begins round the intralobular branches of the dueta, and correlapes each lobule so as to invalute it from its neighbour. It forms a less regular meshwork than the preceding variety, and as a more diffused growth, which in some parts is thick and dense so as completely to destroy the hepatic tiesse; in others, is comparatively seasity and ill-dereliped. The affected ducts become largely diluted and their epithelium is increased. New durfs are also developed, and can be seen by the norroscope embedded in the new fibroid tissue. In this form of the disease, the obstruction is shiely in the ducts, so that there is no necessary interference with the portal circulation.

These two forms of the disease, from their austomical origin, have been

called postal and biliary cirrhosis.

There is a third form which is very rarely met with. It has only been noticed in some cases of inharited syphilis in the inhart. The discuse is here primarily intralobular, and developes within the lobules round the individual lover-cells. This form, as it is only discovered after the death of the child, and probably gives rise to no symptoms, aced not be further referred to.

Symptoms -On account of the different pathological conditions in the alrophic and hyperteephic varieties of hepatic cirrhosis, the symptoms in the two forms are not precisely similar. In both we find signs of interferonce with general matrition, but as the morbid change affects chiefly the portal circulation in the one variety, and the biliary conduits in the other, the later phenomena differ greatly in the two cases, and are usually character-Marie.

In atrophic cirrhosis, the early symptoms are merely three of in ligastion, flatnicace, and general disconfort. The child is often possish and fretful; he is restless, sleeping holly at night; and his complexion is sallow or pasty-looking, with dark discolouration of the lower evolids. He is noticed tarty to be thibby, and sometimes is evidently losing flosh. His bovels are These symptoms may continue for a long time without thange. The urine is upt to be thick with lithates, and may contain crystals of mic acid, or even a deposit of unic acid sand. It is often very acid.

Sooner or later, more distinctive symptoms begin to be noticed, and in hospital potionts it may be only from this point that the child's illness is

dated by the purent. The occurrence of ascites, with sweiting of the belly, is usually the first symptom complained of, and there may be some wandering pains in the side. When the child comes under observation, we usually find dilutation of the superficial abdominal wins, distinct fluctuation in the abdomen, and often a slight enlargement of the liver and spleen. There is little or no jaussiee, but the skin after a time begins to law on curtly lint, and feels dry and rough to the finger. Sometimes there is a little sedems of the feet. The ascites is found to very greatly in amount, and the general condition of the child as subject to rapid variation. On some dress he seems much better than on others, and may be then lively, playful, and although easily tired, even active if allowed to be on his fact. As the disease progreace, the liver skrinks and ceases to be felt, but the spices in most cases continues to increase in size. If the ascites is great, it is often difficult to feel the spicen even when the child is laid on his right side. In such cases, if may be often readily detected by placing the patient on his hands and knees. The weight of the organ then brings it well forward within the reach of the fingers. Hasnorrhages occur in the child from the gustrointestinal nurcous membrane as they do in the adult; and the notions may be dark and scoty from blood, or pure blood may be passed by strol. Vomiting of blood is also sometimes met with. In many cases, we find a tendency to homorrhaps from other parts. The mose and gums may bleed, and eccliymetic spots may be noticed on the skin. As the symptoms increase, the algestive damagements become more and more disturbed. The child is much troubled with weight in the spagastrium, and abdominal paints He often feels sick; sometimes he vomits; his tougue is furred; he is thirsty. and his appetite is caprissons or is lost. He gets thinner and thinner: the dingy line of his skin becomes more and more marked; even at this early age, hemorrhoidal swellings may be noticed, and the distention of the superficial abdominal veins is increased.

When the disease reaches this period, life is very near its close. Often there is general deepsy, but the child may sink and dis without the appearance of say fresh symptoms; or distribute may come on and prove rapidly total. In other cases he dies from hemorrhage, or from an intercurrent influentation, such as plearity or partimenta. Unless a complication be present, there is never any fever. The progress of atrophic cirrhosis is slow, especially in the earlier stages. If hemorrhage occurs, it is usually a

sign that the illness is approaching its termination.

In the appertupher covery of circulosis, the initial symptoms of gustrointestinal decongressat, paller, and wasting, are the same as in the other
form; but the after-course of the disease varies from the previous type.
While in atrophic circlesis the more characteristic phenomena are dependent upon the obstruction to the partal circulation in the hypertrepher
variety the symptoms are due to interference with the believy system of
ducts. Jumilice, rare and faint if it occur at all in the previous form, as
here an early and characteristic symptom. The skin, conjunction, and
uring soon become deeply tinged with orange yellow, and the motions are
light-coloured or chalky. The liver is generally enlarged, and the sphere
in most cases can be felt of unusual size; but there is hittle dilutation of the
superficial veins of the abdomen. Pain may be complained of over the
liver. The bowels are relaxed or inclined to be costine. There is no ascites.

As the disease progresses, the joundice increases in intensity, and the symptoms (vaccrally undergo temporary executation. At these times, rapid enlargement of the liver is noticed; there is slight fover; the child is peer sh and fretful crying with pain in his side, and his condition appears to be

elmority quickly for the worse,

The illness often closes with all the signs of malignant jauntice, doe, probably, to acute degeneration of the hypotic cells. The pulse undergoes unions alterations in frequency, sometimes beating rapidly, at others stackening to 60 or 70. The tongue gets day and brown, and scales appear on the teeth. The child refuses food, and scenes to care only to be left alone. He sleeps much, and is drowny and stupid when awake. Peterbies are often seen on the skin; the gums may bleed, and blood may be consider from the storach. The drownings soon deepens into stupes; and the child lies with his eyes closed, insensible to all that passes, often printing his teeth continuously. There is no pyrenia. The wasting is now rapid, and the patient sinks and dies without recovering consciousness. Sometimes death is preceded by convulsions.

Although these two types of the disease differ in the distribution of the fibroid overgrowth in the liver, they may be both present tegether. In such cases the liver is enlarged, and we find journice combined with menter and swelling of the abdominal veins. The hepatic disease may be the only lesion of the kind present, or may be accompanied by similar

changes in the lungs, the kidneys, or the spleen.

Diagramic.—So many cases are now on record of hepatic cirrhosis occarring in chibiren that the diagnosis should be no more difficult in them. than it is in the adult. It is probable that many cases of ascites, the origin of which is obscure, may be mitributed convertly to this condition of the liver. If in such a case fibroid disease of the lungs can be detected, it renders a similar condition of the liver highly probable. A swellen flucmating abdomen, an enlarged spicen, dilatation of the superficial veins of the belly, piles, a dry, faded, earthy skin-these symptoms occurring in a chill who is not bererish, but who has a history of previous failure of health and of wasting, should make as strongly suspect the existence of the atrophic form of cirrhosis. The absence of fever is an important element in this group of symptoms. If hamorrhages occur from the stomach and lowels, or elsewhere, the temperature still remaining normal, the symptom is strongly confirmatory of our opinion. The chief difficulty in these cases arises from the occurrence of a februle complication; but this is a source of perplanity common to most forms of circuit discuse in the child If there he lever when the child fest comes under observation, it is advisable to withhead a positive opinion until time has been allowed for the pyrenia to subsada,

In the case of hypertrophic cirrhosis, the occurrence of gradually increasing jum lice, with an ordered liver and pains in the side, but without sociles, piles, or dilated parietal wins of the belly, the child being the subject of chronic digestive derangement and wasting, is a characteristic greaping of symptoms. If the illness end with convaisions, come, a typhysic condition, and the symptoms of muligrant jumplice, the case may be mistaken for one of acute yellow strophy, especially if, as may happen, the laser is not notably enlarged. The latter is, however an acute disease, and comes up very strophy, with few or no premountary symptoms; while hypertrophic circlesia is essentially a chronic illness with a long history of failing health. Moreover, acute yellow strophy is so rare in the child

that it may be practically excluded from consideration.

Propassis —When the disease reaches the stage at which signs of serious impairment of nutrition are noticed, evidenced principally by a day, earthy-looking skin, the prognosis is very untavoumble; and if broominges occur, the cml may be judged to be near. At an surfier period, when the spirits are fairly good, even although there be considerable secites, we may take a less gloomy sice of the case. The more serious synoptoms are sometimes found to clear away completely—for a time, at my rate, even if they subsequently return.

In the case of hypertrophic cirrhosis, rapid alternations in the rapidity of the pulse, or dronsiness and nervous symptoms, are of very unfavour-

abse import.

Trunwood.—It is so seldon possible in the child to ascertain the existonce of hepatic virriesis in the emlier stage, that treatment at this period is confined to attention to the digestion, and to the efficient performance of the various organic functions. When the more characteristic symptons begin to be noticed, there are two forms of treatment which may be adopted. The patient may be treated with alkahes and apprients, or with tours. On account of the gastrie demagement, an alkali with a vegetable letter is usually prescribed, and this mode of treatment surveys very well in most cases. For a child of ten years old we may give eight or ten grains of bicarborate of soda with infusion of chiratin or calunda; and the addition of a few drops of the tineture of mot venica increases the officacy of the mixture. Most cases, however, do better under the use of iron and quinne. Ten or fifteen drops of the tincture of perchloride of aron with a grain of quittine given three times a slay, and continued for a longthered period, often seem to have great value in reducing the assistes and improving the general condition of the child. Mild sperients should also be made use of, and locative doses of the Carlsbad or Hunyadi James waters are well borne in these cases. A good form of iron is the executed sulphate, which agrees well with children. It must, however, he given in full doses, and two to five grains, according to the age of the child, may he taken after each most in a tenspoordul of glycerine. The diet should be liberal. It is well to allow ment twice a day; and farinceous foods may be used, having due regard to the state of the stomach and the child's power of digesting them. The action of the skin should be promoted by a daily warm bath, and the patient should be dressed from Lead to foot in floured or some warm woollen material.

The accites is not beactiful by the ordinary distretion but Dr. Bashon's cludybeate distretic, in which the iron is look in solution by the acctic

anid," I have sometimes thought to be useful.

If much fluid accumulates in the postoneal cavity, and causes distress by interfering with the action of the displangen, the effusion must be removed by tapping the abdomen. The operation is accompanied by no danger to the child, if the aspirator or a fine treew be used. It should be performed early and repeated as often as is necessary. Hamorrhages, unless they are capitals, need not modify the treatment, but sufficient bleeding to manifestly weaken the patient must be conducted with gallic axid, dilute subplantic axid, and other styptics. Severe dyspeptic symptoms are best treated with bismoth and alkalies.

CHAPTER IV.

AMYLOID LIVER.

Asmore, albumineid, or lardscrous degeneration is a common losion in the child, and the liver is often found to be enlarged from this cause. The liver, however, may not suffer alone. The sphere commonly, and the kidney frequently, are also affected; and often there is a similar condition of the

Israplastic glands.

Character.—The degeneration is always secondary to a general carbotic condition. It occurs sometimes in syphilitic children, and may be a consequence of scrotula and tuberole. The commonest cause is, however, the existence of chronic suppurations and puralent discharges. In fibroid industrion of the lung, where there is a copious secretion in the dilated bronchi, anyloid discuse is a familiar symptom; and in cases of empressa in early life, if a chronic fishulous opening become established landaceous de-

generation of organs very generally follows.

Morbid Anatomy.—The anyloid liver is uniformly enlarged, heavy, and ercenively douse. Its edge is thin and resisting; its personnal root very amouth and tense. The section is dry and homogeneous looking, of a gray estear and a glistening bacony appearance. No blood oozes from the cut surface. If, as sumotimes happens, there is concurrent fatty degeneration, the knife after the section may look groupy. The sent of the discuss in the liver has been disputed. According to Meckel and Virelow it affects the bree-cells, while Wagner and others are of spinion that the amyloid change a confined to the capillaries, and that the calls are merely streptized. Accanling to Rindfleisch, the morbid process begins in the arterial zone of the hipstic locates, half way between the centre of the foliale and the circumdepende, and implicates the arteries, the capillaries, and the hepatic cells. It then spreads to the centre and afterwards to the circumference of the lebules. Eyber, too, declares that he has recognised the change in unmistakable lives. cells which he had isolated by peacelling. According to this pathologist, the trunk and larger imaches of the hepatic artery are never affected, the merisi process being confined to the smaller hepatic arteries; but the charge may be detected in the hepstic and portal veins, and even in the year. cars. The affected arteries and capillaries are diseased in various degrees. When the amploid process is advanced in a vessel, its conts become thickened sail pellucid; and the affected hepatic cells lose their normal shape, their gravales, bile-pigment, and nuclei, and become irregular and glassy looking. The addition of indine solution status the affected parts of a reddish brown colour, and sulphuric acid turns them first violet and afterwards blue.

Symptosis.—Although the enlargement is perfectly painless, the organ may produce incommission by its weight. It causes distention of the helly; but as there is no compression of the bile-duets or of the branches of the perful win, there is no necessary jurisdies, ascites, or prominence of the superficial abdominal veins. All these symptoms may, however, be found. The accenteric glands, like other internal organs, frequently participate in the anytool degeneration; and if the glands occupying the hepatic notch are enlarged, they may compress both the bile-ducts and the blood-wessels at this spot. In such a case, the skin, conjunctive, and urine are jumificed; there is some efficient into the peritoneum, and the veins of the abdominal purieties are ditried. Even in the absence of jumifice, the stools may be light-coloured if the disease is advanced, owing to impaired function of the hepatic cells.

On polyation of the belly, the liver is found to project several fingers' berndths below the margin of the ribs. Often its lower edge is on a level with the mavel; semetimes it reaches to the crest of the ilium. Its substance field firm and resisting, and its edge extrains thin and sharp. There is no tenderness on pressure. In at least half the cases, the sphere, too, is calarged, and can be fold several fingers' broadths below the ribs on the left

sale.

Digestive disturbances may be noticed. There may be loss of appetite and ventifing; and sometimes an obstinate watery distribute comes on due to amylood degeneration of the infestine, or to subservatous or servicious afceration. The child is usually languid and easily tired. After exertion he is upt to look weary and happard; but if kept quiet, his face, although pallis, shows no signs of distress. Often his fingers and tors are clubbed.

A constant symptom of amyloid disease is america, and the poorness of blood is marked in proportion to the intensity of the degeneration. Consequently, in severe cases, the skin and mucous membranes are pulled, and some selects of the legs and feet may be noticed. Still, no doubt, the kidneys in many cases participate in the amyloid disease, and the america and droppy may be partially dependent upon the renal machinet. Albuminums and costs may then be seen in the urine, but, as is elsewhere explained.

these are not necessary symptoms of allemained kidney.

Disystem. Mere callergement of the liver is at once detected by palpation of the belly. It must be remembered that a hepatic swelling often pressus up the displargm on the right side, and may cause definess and weak breathing at the base of the right pulmonary region. Such signs (dulness and weak breathing) may be mistaken for signs of a pleuritic offusion, more particularly as the signs are detected all round that side of the chest-in front as well as believed. A distraction may be made by noticing that in the case of an enlarged liver the dulness reaches up to a higher level in front than it does at the back (in pleurisy it is higher behind); that the duluess does not pass abruptly into resonance, as it would do in the case of third, for the thin border of the lung overlies the upper margin of the liver and produces a modified tubular or tympositic note at that point; and, lastly, that there is no alteration of the percussion-sete in the dull area when the patient lies on his left side. A dull note replaced by resonance on change of position is characteristic of flast; and if the quantity of final he small, with little thickening of the plears, this test of the effect of gravity upon the percussion note will usually give satisfactory results in the shift.

A liver enlarged from anyleid degeneration is smooth and particularly firm and resisting. It often field hard like wood. Its edge is thin and not premiled, and pressure upon it produces no uneasiness. Such a liver, anaccompanied by jumilies or assites, and found in a cacheotic, pulled child who has a syphilitic history, or has been the subject of bone disease or other form of processed supparation, is in all probability alluminoid. If the sphere is also enlarged, and there is alluminaria with hyaline cents, there can be little doubt of the correctness of this opinion. Absence of splenic delices does not exclude albuminoid discuse, for an amploid splasm is not always bigger than natural. In half the cases the size of the spicen is not increased.

Hepatic culargement from congestion rarely occurs in enchertic, anomic children; and a fatty liver is soft and yielding instead of hard and maining; moreover, it is not accompanied by enlargement of the spleen

ce albaminuma.

Proposit -The presence of amyloid degeneration of the liver in any cachectic child must necessarily be considered as an additional element of durger. There is, however, reason to believe that this form of disease is of less serious argury in the young subject than it is in the adult, provided that the source of irritation and supporation can be removed. It is undensible that in cases in which enlargement of the fiver and spleen exactly resembling anyloid disease complicates old-standing necross of hous in scredulous children, removal of the hone discuse by a entable operation is often followed by a return of the liver and speen to their normal dimensions, and, to all appearance, by complete recovery of health. Mr. Barwell has recorded some remarkable cases of this kind. Is one of these the urine was also albuminous and contained casts of tubes; but after the operation the urine gradually became normal, and the discound organs eventually returned to their normal size. It may be objected that in such cases the enlargement is not due to unyfold disease. That it is so cannot of course be proved, as the crucial test of dissection is writing. It can only be said that the organs discused are those comnouly discosed in albuminoid degeneration; that the symptoms and physical sages are such as are found in cases of this form of illness; and that the causes which are acknowledged to be powerful in producing albuning it lesions have been in operation.

Fourteeat.—The treatment of anyloid degeneration consists, in the first place, in alterning to the cause of the disease, and removing say long-studing suppurations and exhausting discharges which may be mercusing the cachern and adding to the weakness of the patient. If necrosis of loss or suppuration of a joint be present, the aid of a support is required. Fibroid infuration of the long, or a chronic fistulous opening in the chost will must be treated as directed in the chapters referring to those subjects. We must do our best, in the next place, to remove any secondary emplications which may be helping to reduce the strength of the child. The howels must be attended to; distribute if present, must be arrested and if there be any reason to suspect scrothines or tobercular alreading of the intestinal muccose membrane, suitable remotions must be employed, as is chewhere described. Vomiting must be checked by bismath, dilute

prassis neid, and the speking of tee.

For the liver itself, the preparations of iodine are very generally resumended; and as there is always more or loss amenia, into may be judiciously combined with this treatment. I prefer giving the drugs ingly, and have often prescribed for a child of five years of age) fire drops of the tiarture of iodine to be given freely diluted before food, and five pains of the excircated sulphate of iron in givenine directly after each neal. If the intestinal nancous membrane be healthy, this preparation of run does not printed, and given in sufficiently large does, is of great value in the treatment of rachieric conditions in the child. If alceration of the lovely be present, it is less mitable. The surup of the table of iron so often lineagrous, premoting scaling and finialenes, that I have long since abundoned its use. Indide of potassium, combined with the citrate of iron.

may be employed; but the indide should be administered in appreciable down. It should be rarely given in smaller quantities then one grain for each year of the child's life. I cannot remember ever seeing any unconfortable symptoms, such as are common in the shift, produced by this remedy. Gardiner's syrup of hydriadic acid (P. xx.-xxx.) is also applicable to these cases. Dr. Warberton Begbie speaks highly of the effects of nurriate of ammonia in the adult. It may be given to the shift in ten-grain doses freely diluted.

The droper, being the consequence of the susuaia must be treated with iron; and the chalybeste discretic of Dr. Basham, recommended elsewhere, is here also of service. If the bowels are healthy, an occasional dose of the compound julip powder will further the removal of the subcutan-

come effections.

The child must be put on a liberal dist suited to his age and powers of diposition; and if the kidneys are not implicated, he will be benefited by stimulants. The St. Raphaci tonic wine is neefal in these cases. A unitable climate adds greatly to the patient's chances of recovery. Dr. Region recommends a lengthened sea voyage; and there is no doubt that conditions under which the child, warmly clothed, can pass the chief hours of the day in a fresh, bracing air, are the roost favourable to permanent improvement. German writers speak highly of the sulpharous springs of Aix-la-Chapelle, and the waters of Eras and Weilbach, in their influence upon this form of hepatic culargement.

See page 200.

CHAPTER V.

PATTY LIVER.

Form liver may be of two kinds. The one consists in a more observed deposition of fat-globules in the hypatic cells without any injury or degencration of the cell-wall. This is called fatty infiltration. The other is fatty degeneration, in which the natrition of the liver-cells is interfered with. They andergo a retergrade measurephosis, and fat granules appear in them, Each of these varieties may be found in the child. They are most common

in infancy and the earlier period of childhood.

Caustion. Fatty infiltration of the liver may arise in the child from two casses: From overfeeding with farmaceous foods, and from various forms of exhausting disease. In the first case, the hydrocurbon is supplied from without, and being in excess, is deposited in the liver in the form of fat. Deposition of fat under such circumstances any be looked upon rather as a physiological than a pathological process. It is often a merely tear porary phenomenon, and ceases when the diet is changed. In the case of estausting disease, such as taberels, scrobila, intestinal entarris, syphilis, nekets, etc., the fat is reabsorbed from the subcutaneous and other fatty tissus. According to Oppenheimer, in infants dying during the second or there week of entero-courts, the liver, although of normal appearance to the miked ere, is the seat of a real fatty dependence. Fatty granules are seen in the hepatic cells along the whole course of the portal vessels, and the degeneration is preceded by the formation of an abnormal plasms in the cells which completely obscures the nuclei. In other structural discusor of the liver, fatty degeneration may occur as a secondary lesion.

Merkel Assetony.—The size of the liver is not altered unless the fatty thrage is carried to a high degree. In that case all its measurements are increased and its edge is blunted. The surface is lighter coloured then astern), and may have an ody, shining appearance. The hepatic substance bels soft and doughly to the touch and the section is yellowish red to yellow. In extreme cases the blade of the knote books greasy after the section. By the microscope granules and globules of fat are seen in the lepatic cells. The only drops are larger in proportion to the stage to which the infiltration has advanced; and if the process be carried to a high degree, the cells may each be illed by one large drop of oil. The cells at the excunterence of the lobules near to the intra-bloular reins are first and principally affected. These towards the centre are much more healthy. Insertors, on cloudy inspecting a lobule, the part immediately surrounding the central win will be found much redder in colour than the periphery. The left consists of clein and margarine, with traces of cholesterine.

Symptoms.—If the organ is not enlarged, and the degree of fatte infltration is slight, symptoms may be absent altogether. Even if the liver is enlarged there is little to draw attention to the belly. Some tendement may be noticed in the right hypothendrium when this is pressed, and in exceptional cases the ciral may complain of a feeling of heaviness on that side. Cases where the size of the lover is notably increased from the cause are usually those of phthiadeal children. There may be some digestive descangement from interference with the portal circulation, but there is never journitee or ascites. The fatty liver is not always easy to feed as it yields readily under the fager, and is easily depressed from the surface. Consequently, like the softened spleen in typhoid fever, its edge may chale the touch. It is of the utasest importance, in consideration of cases such as these, to less no opportunity of practising the sense of touch and accustoming the fager to appreciate slight differences in resistance.

In fatty degeneration of the free, there is no increase in size of the organ, and the disease, occurring as it does in the course of some exhausting illness, gives rise to no symptoms which can reveal its presence. It is there-

fore seldem discovered during life.

Degrassis.-A liver-enlarged from fatty infiltration differs from other forms of calarged liver. Instead of being from and resisting, its substance is soft and yielding , and the edge, instead of being sharp and thin, is rounded and blirat. Such a liver found in a case of inherentar or screfulous pithics, or in the course of some other exhausting disease, unaccompanied by jumpdice, asertes, or dilatation of the superficial reins of the al-domes, is in all probability futty. Thus, in a little girl aged three years, the subject of a chronic hydrocephalus, who died in the East Loudon Children's Hospital from scate tuberculosis, the liver on the child's admission use found to reach as for dominants as the level of the untilliess. Its edges were rounded and its substance seemed to be normal. There was no sign of jaundice; the superficial veins of the belly were not visible, nor could my flurtuation be detected in the abdomen. The spleen was also enlarged. After death, the liver was found to be groutly increased in size. Its consistence was softer than natural, its colour a favor brown, and some yellow miliary nodules were seen on the surface. Its section had a gressy look, Toe spleen, which was also enlarged, was studded with tubercles.

Proposite. A remarkably fatty liver occurring in the course of a linguring illness implies serious interference with nutrition; but the prognosis depends more upon the primary disease than upon the state of the free.

Treetweet.—The indications for treatment must be derived from the primary discuss in the course of which the fatty condition of the organ has arisen. If a child is known to be taking extrarguant quantities of farinaceous food, measures must be taken at once to put a stop to such sucess; but many other symptoms besides fatty liver may be the consequence of such a dietary. This subject is treated of absorbers (see Gastrie Catarrh).

CHAPTER VI.

RYDAYID OF THE LIVER.

Himorm of the liver is sometimes found in childhood. The disease soldon occurs enries than the fourth year of life, although Croveilhier has quoted a case in an infant twelve days old, and M. Archambault has seen it in a child agod three years and a half. Between the fourth and eighth year it is sometimes met with, but is still rure. After the eighth year it is more common. The earliest ago at which the disease has come

ander my own notice has been five years and a half.

Greenes.-The hydatid growth becomes implanted in the human liver as a result of the introduction into the stomach and intestines of the ona of the tenis echinococcus. This creature is a parasitic worm inhabiting the almost are used of the dog and wolf. The tape-worm is a quarter of an inch in length, and has four joints, the last of which (the proglettic or sexually mature segment) contains the ova. The own are excreted by the axinal is whose intestines they have found a lodgment, and contaminating water or articles of food, become introduced into the human body. It is probable also, that the own and scoliess may be sensetimes convered to the child directly. In the dog, the presence of the worm in the bewels, and the pussage of the eggs and embryos in large numbers through the anne, cases considerable imitation, which the animal enderrours to relieve by acting. If directly afterwards he apply his tongue to the face and mouth of the child, the parasite may pass at once to the child's tongue and be evalenced. How it travels from the alimentary canni to the liver is not clear.

Hydrid disease is endemic in Scaland, where the children are often attested. The enormous number of dogs maintained on the island has been supposed, with much probability, to be the explanation of the frequency

of the disease.

Model Juntony.—Hydated immours are more common in the liver than elsewhere in the body; but from the intestine they may puss not only into the liver but also into the spleen, the mesentery, the wall of the abdomen, and even into the substance of the heart and brain. The liver may contain one sac or several. The sac itself consists of a firm fibrous capsale in close adherence to the liver substance, and is very vascular limits the capsale there is a clear gulatinous bindler (the suvelope of the vascle) composed of numerous fire concentric stratu. This is the mother sac. It contains numerous large and small vesicles floating in a clear fluid, or albertent to the investing envelope. Some of the larger of the daughter vascles may contain smaller stees still of a third generation. These are siden larger than the head of a medium-sized pin. The mother sac itself takes in size from a pea to a marble, an orange, or a child's lead. The fluid it contains is non-albuminous and holds in solution solts, principally the chlorate of sodium. On careful examination of this fluid, the booklets

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of the embryos (scotions) of the terms coldinococcus may be often recog-

nised by the microscope.

The scalices themselves may be sometimes found. These are from one-twentieth to one-sixth of a line in length. The head, which resembles that of the tenia, has four suckers and a trunk. The latter is encircled by a double crown of booklets, the number of which suries, according to Kuchenmeister, from twenty-eight to thirty, or from forty-six to fifty-two. The head is separated from the body by a greove, and at its posterior end is a depression into which a cord is inserted. This attaches it to the inner wall of the sac. The shape suries according as to whether the head is stretched out or retracted. On the body, slongated lines are seen passing backwards from the head. These are intersected by transverse strice. Besides these markings, a number of rounded calcareous corpuscles con be detected. The scalices lie in groups on the inner wall of the cyst, and can be seen through the vesicles well as delicate white particles. Sometimes the mother see contains scalices but so daughter vesicles. Sometimes it contains neither vesicles nor embryos.

The sace may be seated at any part of the liver, but are more common in the right lobe than in the left. The liver is generally enlarged by them, and may appear uniformly swollen if the sac is deep seated. It superficially placed, the crest raises a bump or tumour at the corresponding part of the surface. When it lies close under the peritoneal cost of the liver, this membrane becomes thackened and may form adhesions with parts around. The pressure of the sac upon the purenchymn of the organ causes destruction and strophy of the hepstic tissue. The larger blood-vessels and bile-ducts are solden affected; but occasionally the ducts may be obliterated, or a communication may be formed between the sac and a large duct or blood-vessel. In such cases the death of the cust usually ful-

lows.

After a time changes generally take place in the mother suc. It may rupture from over-distention, and only a few shreds of the original vesicle may be left amongst the daughter cysts. Sometimes the sac suppurates, or is converted into semi-solid atheromatous matter composed of phosphate and carbonate of lime, cholesterine, and a substance resembling albumen-In other cases adhesions may be formed with neighbouring parts, and the eyet may burst into the stomach or bowels, or through the displeagm into the plears or long. Accidental injuries have caused rupture of the cyst and extravasation of its contents into the peritoneal cavity. In rare cases the hydatid sac has been known to open externally through the abdeminal parietes or a lower intercestal space. After escape of the fluid by any of these means, suppuration of the syst may still take place, and praums is one of the recesequences which may result. Sometimes, although rursly, the increase in thickness of the capsule, which may acquire a cartilaginous consistence, so interferes with the development of the echinococcus that death ensues and a spontaneous cure is effected. This, however, is not likely to occur except in hydatids of small size which have not been detected during life.

Symptoms.—When the rest is small and is planted deeply in the substance of the liver, it may give rise to no symptoms at all. In most cases, however, the liver becomes enlarged, but not uniformly. A tumour is felt at one part of the organ which may project upwards into the chest or downwords into the belly. The swelling is painless as a rule, and may give rise to no mensions. But a feeling of weight. It is smooth, round, often clastic, and may convey a distinct sense of fluctuation. Sometimes, however, as in a case to be afterwards narrated, it feels firm and solid like a fibrous growth. In exceptional cases a sense of vibration, first described by Florry as the "hydatid ferroitus," is felt by sharply percussing the finger allowed to rest upon the tumour. This vibration, according to Dr. Sadde, denotes the presence of daughter vesicles. Therefore, if vibration is absent, we should expect to find few or no booklets. Occasionally, pain has been noticed from more distention, as in a case mentioned by Frerichs, where the prin ceased after puncture and removal of a quantity of watery finis from the rise. As a rule, pain, if present, indicates inflammation and suppuration of the sac.

As the numeur seldom interferes with the channels of the bile-facts or portal results, pundice and ascites are rure, and dyspeptic symptoms are seldom observed. In ordinary cases, therefore, the nutrition of the child is not interfered with, and there is no fever. The patient is brought for solvice merely on account of the numeral size and unilateral hardness of his belly. In young subjects the projection, as a rule, is readily detected by the eye, and if seated near the convex surface of the right lobe, as it unially is forms a swelling which protrudes downward from beneath the lower

mbs.

A little boy, aged five years and a half, was brought to me at the bospital on account of the size of his belly and occasional pains which he comphined of in the right hypochondrium. He had, besides, some cough in the morning. On examination of the abdomen, a prominent swelling was discovered in the hepatic region, bounded above by the ribs, and below by s line drawn just below the level of the navel. Its transverse measurement. was three and a half inches. The liver duliness began above one finger's breadth below the nipple, and its lower edge could be felt just below the lower bonler of the tumour. The swelling was smooth, elastic, and gave a semi-fluctuating sensation to the finger. There was no hydatid fremitus. When pressure was made upon it, the child finched and and it was sore. There was no journalice, ascites, or prominence of the superficial abdominal veins. The swelling was penetured with the pasumatic aspirator through the abdominal parietes, and about an ounce of puralent matter was evacusted. No hooklets could be detected. Ten days afterwards the cyst had refilled. It was again punctured, and a quantity of perfectly clear fluid ascaped. The cyst did not again refill, and the size of the liver was greatly reduced when the child left the hospital.

Sometimes the tumour, instead of becoming visible in the belly, may press upwards the right side of the disphragm and the base of the lung, and project far into the right side of the chest. In such a case the lower this on that side are pushed outwards, and the physical signs very much rescable those of a pleuritic effection. Even if the tumour project but slightly upwards, the respiratory sounds are usually very weak at the right posterior base of the chest, and the percussion-note may be a little higher.

pitched, with increased sense of resistance.

If, instead of projecting from the convexity of the organ, the hydatid sac protrudes from the under aspect of the liver, pressure signs may be abserved in connection with the biliny and vascular conduits. It is in these cases that jamelice, ascites, and orders of the feet may be noticed.

If spontaneous supportation take place in the hydrid sac, the symptoms very in severity. They may be grave or triffing. In some cases a slight rise in the temperature of the child occurs; he looks a little poorly; coughs, and complains of pain when his belly is manipulated, but nothing is noticed to excite the alarm of the parents. In other cases he shivers, and his temperature undergoes the rapid alternations peculiar to supparation; the swelling increases in size, and, if left alone, either points at some part of the surface, or sets up adhesive inflammation with a neighbouring organ and bursts into it. The proof that such an observe is the result of a hydatid cyst is the finding of hydatid membranes or broklets in the sur-

trated pass

If the cyst he not interfered with, it will probably in time destroy the life of the patient by bursting into some religiousning organ. Boke his related the case of a child eight years of age, in whom the sac burst into the bowel. The patient recovered; but a freezemble issue to so severe a complication must be rare. The cyst usually bursts into the cavity of the classication time pleum or the lung. Death is a frequent consequence of either accident. In the latter case preumonis is set up, and the patient dies were

out by the profuse discharge.

Hydatid of the liver may be complicated by a similar development in the sphere, in the folds of the measurery, or beneath the peritorcum. It is important to be aware of this possible distribution of the echinococci, as the presence of various transcurs in the abdominal cavity may tend to emburnes the diagnosis. Sometimes the large as well as the liver are affected. These various cysts often appear to be of different ages, and in that case may arise from absorption of embryos at different periods of time. It has been suggested that perms generated by the elder hydrids may be carried along by the current of blood and deposited in other organs; but in this case they could hardly be conveyed from the liver to the sphere or nesentery against the direction of the blood-current.

Discousis.—The diagnostic features of a legistic tumour of the liver are ... A beeblood swelling of the organ, smooth, clustic, and painless accompanied by no signs of jumdies, asober, proteinence of the superficial abdominal wins or swelling of the feet, and giving rise to no pyrexis or superment of the general health of the child. If the characteristic fremitus can be detected on percussion of the swelling, the evidence is com-

plate.

If supportation have occurred in the sat there may be some favor, and the child locks ill and pale. Pain may be complained of in the right hypo-

chondrium, and the temour may be tender when present upon.

If the tumour feel solid to the touch, as was the case in a child who
was under my cars in the hospital, the diagnosis would rest upon the
slow growth and painless condition of the swelling, and the general
absence of symptoms. I have never not with a sarconn or soft cancer of
the liver in a child, but it is possible that this disease neight be mistaken
for a hydrid-cyst. The growth, however, would be more rapid in such a
case, and we should expect to find some impairment of the general health.
In any case of doubt an exploratory parecture with a fine troon; and canula will remove all hesitation. If a non-albuminous, clear, or slightly
turbid fluid recape, especially if heaklets can be discovered in it by the
microscope, the diagnosis of hydrids is clear.

If a large cyst project aparado into the chest and compress the base of the lang, it is often mistaken for a plearitic effusion. The cover is one which is easily follow into, for in both cases there is complete duliness, with increased sense of resistance and weak breathing, all round the right sale of the chest. A distinction may be made by observing that in the case of a logistic cyst the upper line of duliness is curved such the convexity upmants, and that the duliness, therefore, peacless higher in the mid-arithmy line them at either the front or the back of the obset. In pleasance or exactly opposite condition is found. The upper margin of duluess is concave, being less elevated in the infra-axillary region than at the back. If there is any suspicion that the disease is not pleurisy, an exploring treesr. allowing of examination of the fluid, will soon set the matter at rest. The find drawn from the chest in pleurisy coagulates on boiling, while the hydatid fluid, as has been said, is non-albuminous.

In the rare cases where jaundice and ascites are produced by a hedutid gost placed near the concarrity of the liver, no localised swelling can be deteried and a diagnosis is hardly possible unless we can satisfy ourselves by puncture or otherwise of the presence of a similar cyst in other organs.

Prognosis.—If the child is seen before injury has been indicted upon neighbouring organs by bursting of a hydatid sac into them, the prognosis is fatourable; for the slight operative procedure necessary for the evaruation of the fluid and destruction of the evet and its contents is mently well borns. If the ear has been evacuated into a neighbouring organ, the situation is a very serious one, and most of these cases prove fatal.

Toutment.-Although many internal remedies have been administered. in the hope that the drug might pass from the blood to the interior of the eyst, and so destroy the life of the hydatid, it is now admitted that such an object is not to be attained by physic. Our only means of curing the patient is to puncture the cost and exacute its contents. If this be done with a fine trees and canala, there is little risk of escape of the fluid into the pentaneum, and consequent pentanitis. It is best to coupley the posimistic aspirator, so as to prevent the entrance of hir into the ma-After the withdrawal of its first contents, the hydatal cyst collapses and its membrane shrinks away from the investing capsule. The resulting space is rapidly filled by exoded seriou, and the hydatal quickly diex-Sometimes the operation requires to be repeated. It is notally unnecessary to employ irritating injections after emptying the sac, but if the cyst continually redlls, it may be desirable to do so.

A healthy-looking, well-nourished girl, aged twelve years, was under tay care in the Victoria Park Huspital for a swelling in the right side of

the belly which had been first noticed two months previously.

On examination it was seen that the lower ribs on the right side were distinctly prominent, and that the intercestal spaces at that part were widened. The liver dulness began at the lower border of the fourth rib, and the inferior edge of the organ could be felt just below the level of the unfolious. Immediately below the ribs, a solid-feeling tumour was discovered. This gave no clustic sensation to the finger, and was not at all tender when recessed upon. It descended somewhat on deep inspiration. Below it the substance of the liver could be felt of normal density, courtying to the finger a very different sensation to the solid resistance of the funces. Posteriorly, the hepatic duliness began at the lower sugle of the scapula and complete dalness one interspace lower down. The respiratory sounds were weak at the right base behind, and some friction was heard in the infra-scillary region and at the base in front (the child had had plearity eighteen months before). There was no jamilies or ascites, and the superficial veits, although more visible than natural over the front of the chest, were not diluted in the epigastrium or on the abdominal wall. The heart's area was in the fifth interspace in the nipple line. Its sounds were healthy.

An exploratory puncture was made in the tumour with a logodomic inpertion syrings, and some colourless fluid containing chlorides but no allianmen was withdrawn. No hydatids could be discovered in the fluid by the microscope. Some days afterwards the immour was again panetured with the sepirator through the eighth interspace, and twenty ounces of a clear, simus-coloured fluid were withdrawn, having the characters above mentioned. Its specific gravity was 1,008. No hooklets could be seen under the microscope. A solution of iodine (half a drackes of the tineture to Inif an cames of water) was then injected into the cyst, and the child took

a draught containing five drops of hardanum.

The operation was followed by no rigors, sickness, or other sign of disconfort; but the temperature rose every night to between 161° and 162°, scaling in the morning to nearly the mernal level. A fortnight after the first operation, the temour being rather more prominent than on the child's admission, the cyst was again penetured, and twenty-three concess of thick greenish pus were drawn off. In another fortnight the operation was repeated for the third time, removing eleven owners of greenish pus. This was quite sweet, and under the microscope showed hooklets and signs of hydatid differs. On each of these occasions the cyst had been tapped through the chest-wall; but ten days after the hist operation, the cyst having again refilled, the needle of the aspirator was introduced through the obscummal parieties and twenty-three ounces of pus were executed. The operation set up some local peritonitis; but this was quickly reduced by poultaing and the administration of six drops of hashanum three times aday.

After the hat operation the cryst did not fill again, and when the girlleft the hospital a month afterwards, there was slight curving of the spine with the convexity to the left; the right shoulder and angle of the scapulawers a little depressed; the edge of the liver was felt one inch above the ambilious, and its upper border was on a level with the napple. Its substance felt accound to the touch, and there was no distention or tenderness of the belly. Six months afterwards, when the child was seen again, the liver had returned to its normal size; the spine was perfectly straight; the shoulders were on the same level, and no indication was left that the

girl had ever been ill.

Enjection of iodine after the evacuation of the contents of the sac is not necessary to the success of the operation. It is usually found that simple emptying of the cyst is sufficient to destroy the life of the hydrid and that irritating injections are useless. In every case the child should be kept very quiet for a day or two after the puncture, and a firm bandage should be applied to the helly. It is well, also, to give a little opinion at night, in

was done in the case above narrated.

A sufficient time should be allowed to slapso after examining the fluid before repeating the operation. The cost will often seem to be filling up again for a time; but, if left alone, it frequently subsides without further

interference and gradually becomes obliterated.

Dr. Fagg has reported several cases of hydratid tumour of the liver in children which he had treated by electrolysis in the manner recommended by Dr. Althaus. The operation was performed by passing two electrolytic accelles into the cyst, one or two inches apart. The needles were then attached to two metallic wires both connected with the negative pole of a galvanic battery of ten cells. A mostened sponge formed the termination of the positive pole; and this was placed on the patient's skin, at a little distance from the points of entrance of the needles. Its position was changed from time to time during the operation. After the current land possed for about ten minutes, the recelles were withdrawn and nilhesive plaster was applied to the seats of puncture. The operation was usually followed by a little februle disturbance and some pain; but no immediate effect upon the size of the tumour was discoverable. Indeed, the children were sent away from the hospital in much the same state as when they were admitted. But examination, after a period of months, usually detected considerable diminution in the dimensions of the cyst. The operation appears, therefore, to be attended by no danger; but its results are too slow in making themselves manifest to render a suitable for adoption in private practice. With regard to the modust persons of the procedure, Dr. Fagg suggests that the gradual subsidence of the tumour may be due to slow oping of the hydatid fluid through the paratures made by the needles; for hydatid fluid alone, unaccompanied by orn or acolices, appears to be innocuous when extrawasted into the personeum.

If suppuration have occurred in the soc, and the matter withdrawn be putrid and offensive, the cyst most be washed out frequently with a weak antisoptic solution; optim should be given to allay pain and irritation; and opinine in full doses, with nutritious diet and stimulants, will be required.

Part 11.

DISEASES OF THE GENITO-URINARY ORGANS.

CHAPTER I.

THE URINE,

On account of the difficulty of collecting the urine in very young children, it is seldom possible to estimate the average quantity passed in the twentyfour bours. It is not always easy to obtain the quantity necessary for ex-

amination of its chemical characters.

In health, the water is clear, light-coloured, and of low specific gravity; but it is subject to frequent earistions on account of the readiness with which the child responds to every disturbing agency. The quantity scereted is dependent upon certain conditions, such as :- The degree of blood-pressure in the renal actories; the facility with which the urinary tubules discharge their contents; and the state of the nervous system generally. Also upon the condition of the other emunctories of the body, the quantity of fluid taken, and lastly, upon the state of health of the individual. Consequently the water passed varies greatly in amount. Sudden corious secretion may be a temporary symptom in many cases of digestive demagement; in particular, attacks of severs abdominal pain are often terminated by a copious flow of almost colourless urine from the bladder. Also, an epdaptic seizure, an attack of ague, or a fit of convolutous in the shild may be followed by a profess secretion of limpid urine. Various articles of food seem to have a direct action in promoting secretion from the kidneys. In some children barley-water has this effect; and the nurse complains that while taking it, the child is almost "constantly wet." Again, certain diseases are accompanied by an increased flow of urine. Diabetes mellitus, and diabetes insigndus are in rare cases seen in children. The former, however, uncommon at any age under puberty, is almost unknown under five years of age. The latter is sometimes an accompanionent of gustro-intestinal disorders, but ceases usually when the digestive organs have been put into a better condition;

Diminution in the quantity of easter passed is the result of many different causes, and usually attracts more attention than the opposite condition. The skin in some children acts very freely; and in warm weather a large proportion of the fluid may have the body by this channel. In such a case the usine may be very sensity. One morning in July a child aged

ton months was brought to me on account of the small quantity of urine she was passing. During the preceding twenty-four hours she had pussed water but once, and then in very small quantity on the evening before the visit. The weather was very warm, and the child perspected producely, but except for slight costiveness was and seemed perfectly well. I quieted the slams of the mother, advised that the child should be given plenty of fluid. and oplered a gentle aperient to relieve the bowels. After this, the mother was soon made happy by seeing a more copions secretion of urine. The amount of water is also diminished by diagrhous and vomiting which derangements, as in the preceding case, divert a certain quantity of water from the kidneys. When the reduced secretion is due to a watery flow from the bowels, it may be empeticed by the attendents; but when the symptom is an accompaniment of vomiting, the small quantity of water passed from the Malder is often a cause of anxiety. In cases of extreme prostration from defined nourishment in infants, the escretion of urine is scanty and may be completely approused. Indeed, Dr. Parret attributes the excebral symptoms which sometimes occur in such cases, and are called "spurious he lescophiles," to besic mass, the blood being charged with excrementitions matters which it cannot get rid of. In the febrile state, the urmary water is diminished in quantity, and is increased again as the temperature enhades. There is, however, no reduction in the solid constituents of the urine, and the specific gravity is consequently raised. Besides the above cases which act through the system generally, other and local causes which interfere with the secreting function of the kidneys may here the same result. Thus, congestion of the kidneys from disease of the heart or liver, and Bright's disease, may reduce the quantity of water to a very Amount them

Variations occur not only in the quantity of water passed from the hidneys, but also in the amount of solid matters excreted. Thus, in febrile diseases the urine is not only more concentrated from deficiency of water, but it is richer in urea and uric acid, although poorer in chlorides. In health the quantity of urea passed by a child is relatively greater than it is in the adult. According to Uhle, children between there and six years of age pass in the twenty-four bours one gramme of urea for each kilogramme of their weight. This fact is important as indicating the active metamorphoas of the protein compounds of the body which occurs in early life.

It has been said that the water of a young child in perfect health is grite clear. In the normal state it is also slightly neid. Very slight came a will give rise to an increase in the amount of acid scoreted, and the water is then upt to be thick with lithates. As in older persons, the turbility resembly occurs as the urine cools on standing; but sometimes it is furbal. while will warm, and may even be passed thick from the blistder. Infants, especially, sometimes alarm their methors by voiding water thick and unlky-looking from a profuse secretion of unite of soda. The appearance of a deposit of lithates may be due to two causes :- To increased secretion of the salts, and to excess of neid in the water. Young children who are habitually overfed continually pass water loaded with bihades; and if they are taking mordinate quantities of fermentable anatorial in their food, the Missial of acid is also greater than normal. Thus, both the causes which conduce to turbidity of usine are present. During contalescence from acute discuss in a child, when it is our object to further the return of flesh and strength by an ample supply of nourishing food, and at the same time to social overburdening the digestive organs by an excess of nutritive materal, the state of the water offers a very good index as to whether the necessary quantity has been exceeded. If the skild is enting too much, his water becomes at once thick with lithates, and warm us to make some reduction in the quantity, or alteration in the quality of his meals.

Besides lithates, young elibbine, and even infants, may pass free uric sold in their water. This subject will be considered afterwards (see Cal-

culns of Kidney).

The urine in infinite is sometimes noticed to be very offensive. This is due to a catarrhal condition of the bladder, and denotes rapid decomposition of the area. Another symptom sometimes complained of by the mother is that the water is very dark in colour and causes stains on the disper. This may be the consequence of the presence of bile-pigment in the urine.

Albanien is often found in the urine of children, but must not be looked. upon as in every case imbienting disease of the killneys. It is seen in many inflammatory complaints and fevers, as in pareumonia, diphtheria, messles, typhoid ferer, etc. In such cases it is probably dependent either agon an aftered condition of the blood, when it is an expression of the general disturbance of the system induced by the illness, or upon an infectious nephritis, which is found, according to M. Bouchard, in many forms of seute specific fever. Again, a caseal admixture of blood or pus with the urins may give rise to the presence of albumen, as in cases of irratation of the urinary passages by calculous concretions. Passive congestion of the kidneys, such as takes place in many cases of heart discuss and in some forms of broughitis, may be a cause of the same symptom, and the albumen may be accompanied by epithelial and blood casts. But in these cases the presence of the albumen, and even of the casts, is no indication of reganic disease of the kidneys. We are only justified in inferring the existence of renal disease when we find by the microscope hydine or granular casts in conjunction with the albuminuria. A transfert affunctionria is esmetisses met with, and appears to be a result of some bodily derangement quite independent of renal disease. It may be found in school-boys who are preparing for examination. Dr. Kinnicott attributes it in many cases to a transient oraluria or lithuria. It has also been seen in ague districts as a consequence of malaria. Intermittent albusineria albumen being abendant one day, absent the next-is usually due to an admixture of accretions, and should lead us to suspect a habit of musturbation.

As in older persons, the urine of children and even of infants may contain blood. This may be poured out from any part of the unnary passages. When the source of the blood is the seether or bladder, the two fluids are passed separately without mingling together. Thus, in a case of vesical calculus, the child passes first water and then a little blood from the bindder. When the two fluids are intimately blended, we are justified in concluding that the blood comes from the kidney. Renal homorrhage is not very uncommon in young subjects; and may occur in large or in small When in large quantity-in quantity sufficient to give a dark red colour to the whole volume of urine—the blood may be usually ascribed to our of two causes; either to hamorrhagis purpura or to irritation of the kidney by calculous concretions. In the first case there are signs of hymorrings from other mucous passages and into the skin. In the second, the child may complain of no pum, and appear, except for the ha-morrhage, to be perfectly well. In smaller quantities, often enough merely to give a smoky tint to the urine, beconsturin is seen in acute Bright's disease, in homorrhagic measles, in scarlatina, diphtheria, and small-pox; sometimes,

also, in agree. Even after suppression of urine in young children suffering from inflymmatory discritors, the result secretion, when the function of the educes is restored, may contain blood. In fact, wherever albumen is present in the urine blood may be present as well. In all such cases the Good-corpuscies may be recognized by the microscope. Occasionally, espocially in scarlatina before the appearance of albuminuris, the urine may contain the colouring matter of the blood, but without any of the corpusches

being discovered by microscopical examination. There is a form of hiemateria which is common in some parts of Africa, especially in Egypt and the Cape of Good Hope. The hamorrhage is due to the presence of the Etharma homestobia (genus Hematoda). This perssite is found in the portal and mescateric veins, and in the kidneys and urinary possages. According to Dr. James F. Allen, almost every boy in Natal suffers or has suffered from this pansite, for the embryos develope in water and abound in the running streams. The girls, who stay more at home and drink filtered water, commonly escape. The creatures enter the sestem by the stomach from drinking the water, or by passing directly into the bladder through the weether while the boy is bathing. Amongst the natives of South Africa a practice is said to prevail, before entering the water, of tring a piece of tape round the and of the penis to prevent the

entrance of the parasite,

The hermorrhage appears to come from the bladder. After micturition a little blood is passed from the urethra. The quantity is often only a few drops, but may reach several camees. It occurs on each occusion at the end of the flow of urine. Its passage is nearly always accomparied by a rigor, and sometimes by poin and irritation referred to the blabler. On examination of the urine it is found always to contain blood, more or less albumon, and a quantity of mucus. In severe cases stereaction is alkaline, and it contains triple phosphate crystals. Under the microscope the ova of the billionia are seen entangled in the bloodclots and free among the blood-corpuscles. They are 11, inch long, evoid in form, and have a spike at one extremety. If the owns is broken under the microscope, by pressure of the two glasses against one another, the living embryo may be seen to emerge from its shell. It is evoid in shape, like the egg, is pointed at our extremity, and projecting from the sides are incrementale citiz, which seem to be always in motion.

The result of the constant loss of blood soon manifests itself. The boy, although tall, is pale and narrow-chested. He has little appetite, is listless, and shows no energy, either mental or physical. Children are said to begin to suffer from the parasite at a very early age; but soon after pulserty the bemorrhage ceases and the patient recovers. It appears

never to be fatal.

Dr. Allen states that internal treatment of every kind, although it may destroy the parasite in the blood, finls to influence the local symp-leus or arrest the lecunorrhage. To do this local treatment is necessary. He advises the injection into the bladder of a saturated solution of sourbuise in absolute alcohol. Of this, a quantity varying from half a drachm. to two deachnes must be used whom the bladder is empty, and must be retuned as long as possible. The injection sets up a mild cystitis, which should be treated with hyoscyamus and infusion of budga. If the larger quality of santonine be used, the patient feels drunk from the remedy affecting the brain, and the crotitis lasts three or four days, instead of merely one or two; but no other ill effects are noticed. The injection may have to be repeated several times, but is invariably successful in the end.

Afterwards suctonine should be given by the mouth to destroy any em-

bryos remaining in the blood.

Besides emforine other local applications have been suggested. Indide of potassium and the liquid extract of male fern are both well tolerated by the bladder. Dr. John Harley recommends a drachm of the fern extract to be diluted with burley-water and injected into the bladder. Indiale of potassium may be used of the strength of fifteen or twenty grains to the fluid comes. Dr. J. Wortabet speaks in favour of the internal schemistration of cell of turpentine, and records a case in which a complete cure was effected by drachm doses of this reusedy.

Retention of writes is put very common in young children. It may, however, be induced by mechanical causes. Thus, some little boys laws a very long prepare, with a narrow opening, through which the urine in forced with difficulty. This extra-urethral stricture forms a great obstacle to the complete emptying of the blabbler, and may be a cause of serious anjury to the health. Cases are occasionally seet with in which dilatation of the blabbler, ureters, and pelves of the kidneys have been induced by such long-continued retention and personne. Another common consequence of the straining efforts which usually accompany the attempt to concuste the blabbler is prolapsus unit. Retention of urine may also result from the presence of a calculus, which, becoming impacted in the urstam, prevents the passage of water from the blabbler. I have even known such an accident to lend to rupture of the numbersons part of the urethra, and extravasation of the urine. Again, irribation of the return by worms may be a cause of spectrodic retention of urine. Violent bloss upon the lower part of the abdones may produce a temporary paralysis of the likelier and retention. Leatly, in some cases of behile disease, such as

typhood fever, we occasionally find distention of the bladder from atony of the muscular coat.

Incontinesce of arise, or emmesis, as it is called, is a much more familiar symptom in young children than retention. Involuntary passage of the water may occur in the night or in the day; and smeetings the child is unable to control his bindder either by day or by night. This distressing infernity is far from uncommon. It may date from birth, or may be acquired later. When acquired its first occurrence has been attributed to fright; but it is a popular impression that all nervous dorangements are excited by some shock to the nervous system, and too much importance must not be attached to this explanation. In cases where it is not due to manifest weakness of mind or pure laziness of body, and where no discrdered condition is present to which the incontinence can be attributed, we may sometimes, by careful examination, detect some external source of irritation which requires removal. Thus, the urine may be babitually too acid, and deposit crystals of ario seid; there may be phinasis, allowing of accumulation of arritating secretion beneath the prepare; the arethral orifice may be narrowed externally; the propose may be wholly or in part adherent to the glans; or again, great irritation may be excited in the neighbourhood by thread-trorns in the rectum. In a sensitive child irritation at some distance from the Idolder may act as the exciting cause. Thus, enurses may be the consequence of chronic disease of the hip-joint, and may come when, by rest and proper mechanical applicaces, the irritation of the joint has been sublined. Sometimes the most exceful investigation fails to discover any such exciting cause. The incompetence is then attributed to general irritability of the nervous system, or to "spinal imitation."

The mechanism of the phenomenon is well understood. Owing to causes which may or may not be capable of explanation, there is excessive irritability of the muscular fibres of the bladder. Under normal conditions the blackler is closed by the contraction of the sphineter venices, whose office it is to resist the action of the fibres forming the muscular coal. If necessary, the involuntary contraction of the sphincter can be reinferced by the exercise of the will. In the more common form of incontisence, where the involuntary passage of urine takes place at night only, the irritability of the measurier cost is exaggerated, and the resistance of the sphineter is relatively deficient. There is no atomy of the sphineter, but on account of the increased pressure against which it has to contend it requires to be strengthened by voluntary agency. During sleep the agency of the will is removed, and the uplineter can no longer effectually resist the action of the irritable numerilar fibres, so that the contents of the binder are discharged. In cases where, in addition to the abnormal excitability of the museular cost there is a certain degree of atony of the splineter, the patient has little control over his hisder even during the dirtims. Mictorition is frequent, and when the desire to pass water munifests itself, it can hardly be resisted even for a few seconds.

This derangement has been classed amongst the neuroses, with epileper, choren, and other similar affections. According to Troussess, it is often found in families prone to spilepsy, and may thus be a hereditary falling. It eannot, however, be always attributed to a faulty condition of the nerrous system. In many instances it appears inther to be due to the active reflex sensibility which is normal to the healthy chibl. These are the cases in which the entiresis is manifestly the consequence of some external source of irritation, and comes when this is removed. We know how promptly, in health, the nervous system of a child responds to reflex stimuli, and we constantly have occasion to observe the perturbation into which the whole system is thrown by the action of some external arritant. No doubt the class of cases in which the power of controlling the bladder wearns "of itself," more or less sublenly, are cases of this kind. As the child gross older, the extreme semitiveness of his nervous system to exterral impressions becomes dulled. The only variety of enuresis which can be chossed justly amongst the true nervous affections is that in which the involumence is hereditary, or occurs in families subject to epilepsy or other form of negrotic disease," or is apparently a consequence of nervous instability without any external cause being discovered to which the faulty action can be attributed.

Enurses, when sequired after infancy, is generally observed first between the third and fourth years. It is seen as often amongst the strong and robust children as amongst the thin and delicate; but is perhaps, now common in boys than in girls. The more obstimate forms of this infirmity are, however, more common in the female sex, probably because in them the complaint is less often the consequence of external irritation. In ordinary cases the accident occurs only at night, and even then not every night. Often for a week or more the best remains dry. Then it is settled regularly for several night around times. It is usually during the early hours, or later towards daybreak, that the child's bladder seems to be least under control; and it is at these times that the incontinence is

It must not be forgetten that recovered inventionary of urine may be the only with of the sensioners of time split-ptic sensits in the might.

ovually manifested. After continuing for a variable time the infirmity may disappear without treatment. The periods of second dentition and of puberty are popularly supposed to be sometimes marked by this favoura-ble change.

In the treatment of expressis our first care should be to search for any source of external irritation. If this can be found, its removal forms the first step to a cure, and indeed the case may require no further treatment. Thus, the removal of an elongated prepare; the separation of adhesions between the preputs and the glans; the expelsions of thread-worms, or suitable medicines by which too great acidity of urine less been remediedall of these measures have been followed by immediate relief from this distressing complaint. Sometimes, however, such measures have to be supplemented by others, directed to lessen the abnormal irritability of the muscular coat of the bladder. In all such cases care should be taken that the child drinks little towards evening, and empties his bladder completely before he goes to hed. Moreover, if the incontinence occur in the early hours of the night, the nurse should be directed to take up the child and see that his bladder is properly relieved before herself retiring to rest.

Of medicines which diminish irritability, belladoung takes the first place; but it is important to be aware that this remedy, to be effectual. must be given in full doses. Children have a very remarkable tolerance for belladonus, and will often take it in surprising quantities before my of the physiological effects of the drug can be produced. In obstinate cases of courses the medicine should be pushed so as to produce diluta-tion of the pupils with slight dryness of the throat. In children of four or five years of ago it is best to begin with twenty-five or thirty drops of the tierture of belladoum given three times in the day, and to increase the dose by five drops every second or third day, of course watching the effect. Ergot is another remedy which is often very successful. For a child of the same age twenty drops of the bouid extract may be given several times in the day. Bromide of potassions, bennois seid (dose, for to ten grains), and benzoute of ammonia, digitalis, borax, canthardes, complor, and chlord, have all been recommended as specifies in this complant. Sometimes a combination of several drugs seems to be more effectual than one given alone. I have lately cured a little girl, aged four years, who had resisted all other treatment, with the following draught given three times in the day :-

N. Tinrt. bellet	31.
Potas, bromudi, area realization and a contract of the contrac	Mr. X.
Inf. digitalis	2.10
M. Ft. Ingeston	2.00

When the incontinence continues in the day as well as at night, strychmin should be combined with the sedative so as to give tone to the fieble sphincter. In these cases, too, canterization of the neck of the bladder with a strong solution of nitrate of silver (>j.- 3 j. to the cance of water). has been found successful.

Benides drugs, other measures have been employed in obstinate cases. Thus, abstinence from saimal food, including most-broths, has been found to succeed in cases where drugs and other treatment had failed. In some country places in England a popular remedy consists in wrapping the feet of the patient at night in cloths wrong out of cold water. I have never

used this remody, but it is said to be an effectual one.

Electricity has been lately employed with advantage in these cases. One electrode in the shape of a spiral disk, connected with the positive pole of the lattery, is applied to the lumbar region of the spine. A second electrode is placed above the pulses or in the perinsum. A weak current is then passed for several minutes once a day. It is said that under this treatment immediate improvement is noticed, and that a complete cure follows within a fortnight.

CHAPTER II.

CHIBONIC BRIGHT'S DISEASE.

Basser's disease, both in the acute and chronic stage, is seen in the child.

The scale form is, however, the more generally net with on account of
the frequency with which surfation occurs in early life, and the tendency
of this specific fever to be complicated by sends renal disease and dropsy.

Common .- It is no doubt to searlet fever that the large proportion of cases of acute Bright's disease in the young child must be referred. Still, it is not very uncommon to most with acute ranal dropsy in children who are without any history of scarlatina, who show no signs of desquamation of the skin, and in whom no cause for the symptoms but recent exposure to cold can be detected. The practice of short-coating infants of a few months old, regardless of the state of the weather, which prevails in this country, is no doubt often answerable for this as for other externed disorders in early life. A child of a few months old, who has been recently short-costed, is taken out on a cold damp day almost raked from his wrist. downwards; for his sounty skirts afford little protection to the lower part of his body. A day or two afterwards he is noticed to be pole and pullylooking about the face; he comits, and his belly and legs begin to swell. At the same time his urine is sensity, high-coloured, perhaps smoky, and throws down a precipitate of albumen on beiling. This is not a rare instance, but occurs sufficiently often to be a not unfamiliar experience to most medical practitioners. It has been suggested that there is a connection between eccura and kidney disease in children; and eccous of the genitals has been said to be often followed by fatal renal symptoms; but I cannot correlecate this statement by my own experience,

The form of Bright's disease met with during the first two or three years of life is generally the neute variety. Infants, however, as well as older children, may suffer from the disease in a chronic form; but no doubt this is in many cases a relic of a previous arute attack. Certain diseases may by the foundation of chronic renal mischief, vir., scurinting, receive, smallpex, scrofulous disease of bone and of other tissues causing prolonged

suppuration, ague, diphtheria, and (in infants) intestinal catarric

Either the centracted grammar kidney (interstitial nephritis), the large facty kidney (chronic parenchymatous nephritis), or the amyloid kidney may be not with in sorly life; but the first is rare at this age, although it appears to be sensetimes set up by obstruction to the escape of urine, either from impacted calculus or some other cause; and the fibroid interstitial growth may then be profuse.

The large fatty kidney is more commonly met with than the preceding. This lesion is usually the result of acute Bright's disease, and commonly dates from an attack of scattating. It may, however, he chronic from the

first and arise as a consequence of long standing supportation.

The anyloid hidney is far from rare. Children, especially those who

are subjects of the aerofulous cachenia, are very liable to suffer from profuse purulent discharges. If the discharge is continued for a long time together, it will often lead to anyloid degeneration of organs in which the

tidarys as well as the liver and spices are involved.

Marchal Assertiony.—It is unnecessary in a special treation, such as the present, to enter minutely into the pathological changes to be met with in the kidney in cases of coronic Bright's disease. These changes are the sum in the child as they are in the adult, and are described at length in all the text-books. It may be sufficient to recall to the reader's memory

the principal points connected with each of these three varieties.

The contractof granular lodgey is, as its name implies, considerably reduced in size. Its supsule is thickened and adherent; its surface is notelar, and its colour a deep red. On section we find the cortex thin; the medalla strophied, and the substance dense. The essence of the discuse consists in a great hyperplasia of the connective tissue of the organ. This Should overgrowth passes insumes from the enrice along the course of the interpolarity vessels, and involves more or loss regularly the whole depth of the cortex. It thickens the Malpighian capsules, and compresses the espillary tufts and the coprolated tubes. The small arteries are tlackened and their calibre reduced. As the increase of throne tisone is not evenly distributed, but is much greater in some spots than it is in others, the serount of injury to the kidney substance varies; and while some tubes are much atrophied and shrinken, others escape almost entirely. The convoluted tubes are often demoded of their epithelial lining, and are sometimes seen under the microscope to be stuffed with fotty debets or with hydroc custs. Is some places the denuded tubules dilate here and there into cysts; in other places they already and may be requested into mere threads. The straight tubes in the pyrounds are comparatively little sitered. shrinking of the kidney and its granular appearance are late changes, and are due to the contraction of the new fitered material.

In the large white ferm bidges at is the tubular structure which is principally involved, especially the convoluted tubes in the cortex. The kidney is larger than natural, and its expecte can be readily detached. The cortical part of the kidney, to exciling of which the increase in size is due, is perfectly smooth on the surface and pale in colour. No surviving expelluries are to be seen, but here and there red specks from extravasation of

blood dot the ansenic surface.

On section the costes has the same pullid tint, and contrasts curiously with the cones of the pyramids which still retain their healthy colour. By the microscope the convoluted tubes are seen distended to twice their mbural size; and their spatialist lining is swellen and granular backing. The tubes often contain granular deleris and fibrinous exadation, and, sometimes, extravasated blood from a ruptured Malpighian body.

After a time the epithelial cells in the tubes become disintegrated and are removed, and sometimes increase of the interstitial connective tissee takes place as in the preceding variety. The killney then shrinks and may become granular on the surface, but still continues vary pule in

cohour.

Ampterf drover in the kidney is anually associated with the same degracestion of the liver and spices. If the degeneration is marked, the organ is increased in see and has a wary, pule, and slightly translatent appearance. The ampterid charge begins, as a rule, in the results of the Mulpighian turbs, but seen appears from these to the results (both afferent and offerent), the vaccular pleasess (both intertubular and interiolishar), and the urinary inhales. This condition is often combined with other forms of renal degeneration.

Symptoms.—The symptoms of scate firigid's discuse have been already

considered in the chapter on Scarlatina.

The chronic disease in its carlier stages, and until it gives rise to dropsy, is accompanied by few symptoms and, indeed, is probably often over-looked. The child is pule, dull, and listless. He complains of his head, and is expericious in his enting. Sometimes be passes large quantities of water, which especially if the disease he of the granular variety—may be of normal density, and contain no allowers. Even when dropsy occurs.

alluminaria may be absent or trifling.

A little boy, aged one year and ten months, with sixteen such, began gradually to get poorly. He grew pule, seemed heavy and sleepy, and somilied often after his meals. After this state of things had continued for a month his face became puffy, his exclish swelled, and general ordens appeared over the body and limbs. When taken into the East London Children's Hospital, no disease of my organ could be discovered; the liver and spinen were of natural size; the heart was healthy, and the temperature was normal. There was no sign of pesling of the skin. For some they no urine could be collected, for the quantity was scanty, and the child passed it all in his cot. At last some was obtained, but no albumen was discovered, nor could any casts of tubes be seen. Purges and discipliner oil. The sickness continued for some weeks after the ordenia had disappeared. The urine was examined several times, but no albumon was ever found.

The dropsy in this case was not the result of assemis and weakness, for the child was not at all emacrated, and his nuccess membranes were fairly red. The orderes had all the characters of hidney dropsy. It began in the face, and was distributed very generally over the body. A similar form of dropsy without albuminums or custs is sometimes found as a sequel

of scarlet fover.

In some cases Bright's disease appears to be quite latent until colema occurs.

A little boy, aged twenty-one months, with twelve tests, came into the hospital, under my care, with slight dropsy which had heated for a week. The child had never had acadetina or measles; and had been a fairly healthy boy, although for some weeks his bowels had been related, and the discharges offensive. He had suffered, shortly before admission, from ulceration of the month, which, however, had been soon recovered from He coughed, and his appetite was poor.

When the child was first seen, the orderna, although slight, was general. The serine was scanty and alkalise, and contained operatorable of albomen. There was a deposit of triple phosphate crystals with many large and small hydine costs, and some granular casts. The temperature at first was account but after a few days rose to 101.4°; the child began to cough; he was then violently convulsed and died a few hours after-

stunds.

On examination of the body the lower part of the right lung was found to be consolidated. The left kidney was absent. The right measured three inches in length by two and three-quarters in breadth. The capsale was adherent, and on removing it small portions of renal substance were torn away with it. The surface of the organ was very granular and irregular. On section the tint was paler then natural; the pyramids were less red than in the healthy subject, and the cortex was thinned. The whole kidney felt very dense, and its substance seemed unusually tough. Unfortunately, the organ was not enumined microscopically, but there can be little doubt that this was a case of granular kidney, and that it was of

some standing, although in so young a child.

Sometimes the only sign of the chronic disease may be the marked suffer of the complexion, with frequent attacks of headsche and comiting, listing for several days, or a week or more at a time. Sometimes, as in the alult the sight becomes affected from albuminous retinitis. Such cases, without a careful examination of the urine, may be mistaken for ecrelial tumour. Indeed, a history of frequent attacks of headache and vertigo, accompanied by comiting, and of gradual failure of the sight, is very suspicious of a tumour of the brain. In all such cases, therefore, it is very important to make a careful examination of the water for albumen. and to search the deposit frequently for casts of tubes. The skin is genenally day and rough, and is often markedly inelastic, so that when points I spinto folds it remains emaliol, and does not smooth out quickly, as a healthy skin would do. This is especially the case in infants and the rounger stilldren. Purpura is sometimes found to be an accompanionent of the renal mischief; but whether it is excited by the replantis or, as Dr. Gee suggrests, arises with it as a consequence of some boddy condition common to both, is uncertain. Purpune pateless may be seen on the skin, and blood may be passed with the arine and stools.

Usually, acute conceivations occur from time to time. These mostly follow a chill, and are accompanied by sanity secretion of urine, profiness of the face, and orderna of the limbs. The enter is then albuminous, and may be smoky, or even red, from admixture with blood. The her-lacing a often severe, vomiting may be distressing, the dropsy may be marked, and convolutions may occur, with drowniness or come. Sometimes the attack is complicated with pericarditis or pleurisy, as it is in the adult. When the maste symptoms subside, the amount of albumen gradually distributes, and after a time may quite disappear from the urine. There may be then little left to show that the kidneys are not healthy, but reperted communications of the urine will perhaps disclose a slight deposit.

with fragments of granular or hyuline custs.

In cases of scute senal dropsy, it is common enough to hear that the child had had scarlaffine some months or years previously, followed by dropsy; that he had completely recovered to all appearance; but that lately, having been exposed to cold, he had began to would and the celema had respected. In such a case it is reasonable to conclude that the restoration of the kidneys was not so complete as had been supposed. Some times the acute exacerbation is preceded by police, wasting, counting, general weariness, and a look of ill-health. The shild passes water much more frequently than natural in the day, and at night may we his look.

A boy, aged fourteen, was in the East London Children's Hospital, under the care of my colleague, De. Donkin. The patient test had measles and scarlatina. He was said to be very dull at his lessons. His secretion of grine was large, and he seemed to have a difficulty in holding it. A month before his admission the boy had had a rash over the body which had lasted a fortnight. He had then begun to vomit his food, complained of pain all over, looked pallid and weakly, and was ununfeatly loong fiesh.

When admitted he was pale and thin; seemed very fretful, and looked ill. His temperature was normal. His urine was acid, had a specific gravity of L015, and contained no albumen or sugar. The bay coughed a little, but nothing positive was noted about his chest. There was no

sign of peeling of the skin.

After being in the hospital for about three weeks, during which time he had decidedly improved and had gained flesh, the had was allowed to go out into the garden. The same evening his face looked pully, and his legs were found to pit on presoure. His temperature that night was normal. On the following day the colema was nowled. He comited several times; complianed of severe headache, and seemed very stopid and stubborn. His temperature rose that evening to 100°. His water was smoky, contained a sixth of albumen, and had a docculent deposit which shared under the microscope many granular casts. On the third day his temperature was 101.8° both morning and evening, and he had a series of consulere fits, followed by drownness which lested for twenty-four hours. His temperature then became normal again, and the orderin begin to decline. His water was discoloured with blood for several days, and the albumen and casts only slowly disappeared; but before the boy's discharge, his urine, except for a slight harmose with the cold nature and test, had

again become normal.

In this case the history and the previous symptoms, as well as the rapolity with which the renal phenomena followed the chill, pointed to some chronic affection of the kidneys, although no albumen was found in the urine on the lad's admission into the hospital. Perhaps in many of these cases careful and repeated constitution of the water would be more successful in finding albumen. A great deal depends, too, on the way in which the examination is conducted. Builing the urine and afterwards adding a few drops of nitrie acid is a very course test; and if the propostion of albumen is small, it may easily escape detection by this means. A far more delicate test is that of floating sold union from a pipetic upon the surface of strong nitrie acid placed in the bottom of a test-tube. Albumen should never be excluded until the urine has been tested by this process, and allowed to stand for a quarter of an hour in order to give the light. cloudy disk of albumen time to form upon the top of the acid. Still, it current be densed that, however carefully the examination may have been conducted, it will often be impossible to discover the presence of oven a trace of albumen between the attacks of acute discose. The child however, is not well." He often remains pale and thin, leass all appetits, and is nervous and excitable. His dislike to enting is a source of great anticty to his parents, and, indeed, it is often most difficult to personde him. to take even a minimum quantity of food

The mater may be secreted in four amount, often, indeed, is copious; but its specific gravity is low. It is annelly very soid, and sensetimes unic soid and is seen at the bottom of the claimber pan. Perhaps on this secount there is often a difficulty in holding the water, especially at night. There can be little doubt that, although giving rise to no very characteristic symptoms, the hidneys are not healthy, and that their depurative func-

tions are imperfectly performed.

A case which I am some time ago, in consultation with Mr. E. Studiev Smith, affords a good example of the insidious progress of granular kid-

ney disease in the child,

A little boy, aged nine years, of excitable, percous temperouent, inheriting a tendency to epilepsy on his father's side, and to plathois on his mother's, was said to lave been poorly for eighteen months. His indisposition had begun with an attack of "fever" in which the temperature rose every night to 102" or 103"; he had severe headache, and was at times slightly delirious. He was ill for a week. Since that time he had had singlar attacks, but milder in character. He was said often to look pasty and sallow in the face, and to seem languad and inclined to more, although when perity well in health he was lively and active, and his spirits were When poorly, his urine would contain a trace of allumen; it was always very acid, and often contained large quantities of wic acid and No casts were ever seen at that time. The boy was wasting slowly, although his appointe was good. He slept badly, and was always restless at night. His boxels were usually costive, and after an aperient be passed much mixtus. He stammered at times, and the muscles of his face would often twitch. The specimen of his urine above to me was very acid and of specific gravity 1.024. It contained no trace of albumen; but there was a comoun deposit of une sold sand. After I had seen the boy he slid not improve. The albumen became more frequent, and granular casts and bicol-corposcles began to be discovered. On one occasion, a hyaline east was seen. There was never any trace of colema, and his heart and pulse trees normal.

In this case the feverish attacks were no doubt attacks of acute gastric enturit. Agent from this symptom, which may have been only an acridental feature in the case, and had probably no other influence than that of aggraving the tendency to flatnience and acidite, there can be little doubt that the boy was suffering from granular hidney. It seems probable that there is a connection between the passage of red and and the ladacy degeneration, for I have noticed the association in other instances. Certainly, in a case where a child hiddenly passes large quantities of uric acid crystals, I should be disposed to fear the occurrence of Bught's disease; and the occasional presence of a trace of allumen would add strength to my apprehensions.

The after-course of this boy's case is interesting. He was sent to the south of France, and pussed a considerable time at Cames. Dr G C Bright, under whose care the boy was pixed, informs me that on arriving at Cames the urine contained one-eighth of albumen, and that its soliment showed numerous granular costs and much recal epithelium. After a stay of muc months the water had coased to contain albumen or costs, although there was still an occasional deposit of uric neid sand. Its density was

Inhitmally 1.025.

In this boy there was no hypertrophy of the heart; and no abnormal tension of the pulse was ever noticed. Although the albumen caused for a time to be present in the urine, it is impossible to suppose that all structural lesion of the kidneys had disappeared. This is no doubt another instance of renal disease without albuminaria, or rather, with intermittent albuminaria, for that albumen and casts will eventually reappear can scarcely be doubted. It is curious that a sister of the patient suffered from similar symptoms.

When the kidney is the seat of socyloid degeneration there is no necessity albuminoria, and even increased secretion of urine is not un invariable symptom. Dr. M. Litten has published the details of four cases which place the truth of this statement beyond a doubt. In a case which was under my ten care—a little girl seven yours of age—general orderns had been present for two years, succeeding to an attack of sentiatina. The child suffered from angular currenture of the spine of some standing. Her liver and spices were much enlarged, and felt very dense and resisting. Enlarged meaniteric glands could be detected in the abdomen on deep pressure. The overage quantity of water passed in the twenty-four hours was twelve ounces.

It had a copious deposit of lithates. There was never any albumen nor could any casts be discovered under the microscope. Its density varied

from LAGN to 1,025.

In this case, where the later and spleen were cridently the seat of anylical degeneration with probable culargement of the same kind in the meanteric glands, it is difficult to suppose that the kidneps had entirely escaped any participation in the disease. Probable only in early stage of the degentration is characterised by absence of albuminesia and a scanty secretion of urine. As the disease becomes more abranced, the quantity of water secreted is more copious; it contains albumen—at first in small quantities, afterwards in considerable amount, and the specific gravity of the fluid is high. Benal epithelium with byaline granular, and often fatty casts, may

be seen by the microscope in the deposit.

There is a form of roral disease from which children of various ages are pores to suffer, which appears to be in many cases a temporary adment, but which produces very definite symptoms. The disorder is indicated by pulfor, weakness, wasting, constitution, sometimes by sickness, and in every onse by a remarkable absence of the natural clasticity of the skin. This loss of elasticity is a very characteristic symptom. When the skin of the abdomen is pinched up, it remains wrinkled, or only slowly recovers its encothness. On commining the water no albumen is found, but the quantity is small and its specific gravity is low. Evidently sufficient solids are not discharged by the kidneys; and the retention of effete matters in the system, owing to this renal inadequacy, is apparently the cause of the symptoms. A case has been already referred to in the chapter on enterio fever, in which a child convalescent from that disease passed for many days no more than eight or ten ounces of urine in the twenty-four hours, with a specific gravity of 1.015. He was excessively feeble, stupid, and lethargie; his skin was markedly inclustor; and it was only after the secretion of water had increased, and its density had risen, that his physical and mental weakness passed off, and the normal elasticity of his skin was restored. It was calculated that this boy secreted by the kidneys, in the twenty-four hours, no more than two and three-quarter grains of solid matters for every pound of his weight-a. quantity which is of course considerably below the average amount

The quantity of weapassed duily in childhood is proportionately greater than it is in adult life. In the East London Children's Hospital I caused the urine of thirteen selected cases, in which kidney disease could be an clouded, to be collected for the twenty-four hours; and calculating roughly from the specific gravity, it appeared that the average quantity of solid matters passed from the kidneys in this time was five grains for every pound of the child's weight. The ages of the children were between four and ten years. In the adult the duily quantity has been estimated by Dr. Parkes to be three and a half grains per pound weight. My experiment was of course a rough one, making he pretensions to mathematical accuracy, but the conclusion arrived at was, no doubt, sufficiently near the truth to

be useful as a guide in practice.

I believe quite young children sometimes suffer from a temporary deficiency in the secretion of mea, although, as it is impossible to collect the whole quantity of urine passed, I can bring forward no positive evidence in support of this statement. Some time ago I saw a male infinit seven works old, who was brought up at the breast of a very healthy methan. He had been perfectly well for the first four weeks after his birtle. He had then begun to wordt sour fluid and cord, and at the same time his howds had become obstinately confined. This state of things had consting after an aperient or exema. On the meeting of the visit he had just been relieved after five days' constipation. The child was thin but did not look ill. No sign of disease could be observed about any part of his lady, and the belly was not retracted. The skin was eccessively inclusted. It lay on the abdomen in loose wrinkles, and when pinched up the folial remained exactly as they were left without smoothing out. No urine could be obtained for examination. An aperient powder was given, and small diseas of the infusion of senan with glycerine were endered three times a day. After two months the clusticity of the skin had partially returned, and eventually it was perfectly restored. The return of clusticity in the skin was accompanied by progressive improvement in the condition of the child. The comiting coased soon after treatment was begun; but the costive state of the bowels remained a trouble for a considerable time.

The above case represents a form of demagement which is sometimes met with in the infant. It is not an ordinary case of gastric catarrh, such as is common in early infancy, for in this disorder the elasticity of the skin is in no way interfered with. Nausea and veniting, constipation, a dry, inelastic skin, and slight albuminumia, form a combination of symptoms constantly not with in cases of deficient renal secretion in children whose water can be tested, and also in solub, according to Sir Andrew Chark. It seems, therefore, at any sute possible that diminished functional activity of the kidneys may produce similar symptoms in the infant. Kjeliberg has observed a frequent connection between intestinal catarrh and parenchymatous inflammation of the kidney in the young child, and mentions as one of the characteristic symptoms of the kidney complication a dry, longly skin without chasticity. In every case, therefore, where we find this condition of the akin in a young subject, we should commine very carefully for signs of renal disease.

Diagonax—In examining for albumon a specimen of the urine passed after the first meal in the day should be taken, and the floid should be afterwards set uside in a conscal glass is order that solid particles, if any, may subside. The deposit should be taken up carefully with a pipette, and placed in a shallow cell made by comenting a thin ring of glass on to the ordinary microscope slade. This, covered with a thin glass, should be

carefully searched for custs of tubes.

The complete absence of albuminums and casts is no sufficient indication that the kidneys are perfectly healthy. It seems probable, from the cases which have been murated, that a certain amount of disease may exist in the kidneys although the urine presents the characters of health; and it is now an established fact that considerable angleid degeneration may exist in the ceran without its presence being betweed by my abnormal condition of the urinary secretion. In all cases where renal disease is suspected, although no albuminuma can be discovered, it is well to cause the whole amount of water passed in the twenty-four hours to be tellected. A calculation can then be made from the specific gravity of the fluid, by means of Professor Hanghton's tables," which will give a rough estimate of the quantity of area being excreted in the course of the day and might. If at the same time we ascertain the weight of the sland, the smount of solid natters passed for each pound of his weight can be easily calculated. A healthy child should pass daily between five and six grains of uses per pound of his weight.

Green to the Medical Times and Garette for October 21, 1964.

If albaminum and costs can be detected, it is not always easy to decide upon the nature of the kidney lesion. The presence of amylical degeneration of the liver and spleen renders the same condition of the kidney very probable. A chronic form of Bright's discuss succeeding to an acute attack, such as an attack of scarlatiness replicits, is usually due to the fatty kidney (chronic parenchymatous nephritis); but this form of Bright's discuss may also, like the contracted granular kidney, begin insidiously. If albuminum and costs are present without dropsy, the kidney is probable granular.

The constant passage of red sand from the hidneys is to be regarded with anxiety, for in such cases Bright's disease may be developed after a

time, as in the case of the child before referred to

Proposess - When Bright's disease is established in the child, i.e., when albumen and custs are constantly present, the prognoses is very unfavourable; for such a condition, if it do not destroy life unassisted, must greatly increase the danger of any intercurrent malady. Such etaldren, of attricked by procurrous or pleurisy, are very likely to die. In the case of amyloid kalney the prognosis is, perhaps, less sufavourable than in the other forms of Bright's disease; for it seems possible that, if the chronic supportative process which has excited the structural change can be removed by operation or otherwise, all the symptoms of hidney decorrement. may disappear. That such a happy termination to the illness is possible, is proved by a case published by Mr. Burwell, in which, after the removal of a scrofulous joint, albuminum and custs ceased after a time to be found in the urion, and the child grew up into a strong, bealthy woman. From this case we may learn that the existence of amyloid disease of the killpeys is no bur to the successful issue of operative procedures; but that on the contrary, surgical interference in such cases is orgently called for.

More renal madequary, without albuminum or history of scute Bright's disease, is probably in most cases a merely temporary condition which, under suitable treatment, may be rapidly recovered from. But if a child habitually pass large quantities of unic acid sand, or if he have more than one attack of scute Bright's disease, even although the units have been normal in the interval, and return to a healthy state after the symptoms have passed away, we should repard the possibility of his ultimately developing manifest disease of the kidneys as one not to be entirely suchoded

from consideration.

Textured.—In cases where we find deficient secretion of urea, without alleminum or segns of organic renal disease, we should take care to unlead the bowels by free purgatives, unless, as in the case before referred to, the child be just convolescent from typhesid fever. In ordinary cases gray powder and juliplus may be given in doses suitable to the age of the child. He should be made to drink freely of some harmless finid, and thin barley-water accelerated and flavoured with ramilla is very useful as a muchlaginous dimetic. The aperient should be repeated as often as seems desirable to ensure complete relief to the bowels; and in addition the pattent may take a mixture containing estrate of potash with finetime of run venica, or a few drops of fineture of rimbards. The child should not be allowed too much animal food. Fish is better for him than butcher's mest, and he should take plenty of milk and green vegetables. If broth be allowed it must be perfectly fresh, and not be made from " stock." If there he aremia in these cases, iron can be given after a time.

If a child be the subject of undoubted renal disease, it is of the atmost importance to attend to the working of functions the impaired action of which will increase the labour of the kidneys. The skin should be cocomaged to act by a daily tepid both, by warm clothing, and by exceluavoidance of the causes of chill. The patient should be dressed from head to foot in flamed or other warm wooden material, and should take regular carries in the open air. The bowels, if inclined to be costive, should be kept referred by apprients; and small doses of some, or polophylline and beliationse, or a nightly dose of Hanyani Janes scater, as recommended in the chapter on constipation, are very modul. The patient should extaparingly of flesh ment; but milk and fish are suitable, and a due proportion of firmexcous and vegetable matters should be included in his diet. If the amount of albumou is great, it may be advisable to put the child for a time upon a diet consisting morely of milk and break. Certainly in such cases animal food should be taken with contion, and should not be allowed every day.

Climate is a matter of very great importance in cases of chronic resuldisease. If possible, the child should be removed for the winter to a neighbourhood where the air is fairly warm and dry. Here he can poskin time out of doors without risk of chill, and the beneficial influence of each a change is often very remarkable. The albesten and costs may quite disappear from the urine, and for the time, at least, the health may

arem to be completely restored.

Of medicines, iron is the best remedy, and the perchloride the best preparation. This salt has a distinctly dimertic action, especially if well disted with water. Its influence in premoting the remai secretion is insecond by the addition of dilute acetic used and solution of acetate of amenonia, as suggested by the late Dr. Basham (see page 730). The draught may be sweetened by glycerine or by a few drops of spirits of eldicators.

If an attack of acute Bright's disease come on, with elevation of temperature, ordern, and head symptoms, relief may be speedily obtained in the anjectity of cases by free purgation and packing in a blanket bath, as recommended in cases of souristinous nephritis (see page 46). The influence of energetic purgation, too, is most striking; nothing relieves head symptoms so quickly as a good secreping sperient. A caseful form is the combination of compound julap powder with compound scanmonly powder. Enough should be given to produce four or five copious evacuations. Eleterism is too uncertain in its action to be suitable for children

If the albuminum persist after an attack of the acute discase, iron should be given directly the temperature becomes normal. The drug may be usefully combined with structurin and arsenic. A child of eight years old may take three times a day twenty drops of the liq. ferri perchlorsh with two of liq. strychnic and four of liq. sessuicalis in a large wineglass ful of water sweetened with giverine. This medicine should be given directly after food, lest it cause names. Gallie send has been recommended, but on account of its tendency to constipute often some to do more harm than good. The first necessity in these cases is to promote free excretion. from the boxels. If this function be interfered with, no medicine can be of much value. On this account iron often seems to act better if given in the form of the sulphate with sulphate of magnesia and dilate sulphuric and; but the other form is equally, if not more, serviceable, if care be taken to keep the bowsls from In obstinute cases fuschine (the chlorohydrade of roscaniline) is said to hasten the disappearance of the albutners after an acuse attack. This drug may be given to a child in dose of from two to five grains. It tinges the urine of a reddish colour. Recently,

chloral hydrate has been given with the same object. It can be prescribed to a child of five years of age in does of three or four grains three times a

day.

A fital ending in uncomplicated cases of chronic Bright's disease from exhaustion and dropsy must be rare in the child. I cannot remember laving met with such a case except in connection with anyloid disease, and there the general distribution of the degeneration furnishes other reasons for the condition of the putient. Chronic kidney disease is usually fatal in young subjects through the occurrence of some inflammatory complication. Pleurisy and preumonta in such cases are excessively dangerous. They must be treated with stimulants and counter-critation. The chest and back should be repeatedly dry-cupped; the bowels should be freely acted upon, and the strength of the patient must be supported by suitable quantities of unwesterned gin.

If the dropes in any case he copious, it must be treated as recommended under the head of Scarlatineers Nephritis (see page 46). Pilecarpine is sometimes useful in these cases. Occasionally at may be necessary to

puncture the legs with Dr. Southey's trocurs.

CHAPTER III.

CALCULUS OF THE KIDNEY.

Tur occasional passage of red sand from the bladder in childhood is not an ancommon occurrence. As a rule, little pathological significance is to be attached to it. Uric acid is very liable to be formed if food is taken largely in access of the requirements of the system. It is not even necessary that the food be mitrogenous to produce this result; for as Dr. Garrod has observed, it is a mistake to suppose that an animal diet must tend aree to the formation of uric acid than a vegetable one. It must be remembered, however, that the presence in the urise of a deposit of lithic acid or its salts is no proof that any excess of the acid is formed and secreted. The increase is often only apparent. When the urine is scanty from deficiency of water, the uris acid may appear to be in excess. Again, great acidity of urine may cause a deposit of mic acid. The neutral lithates are more aslable them the acid lithates, and these than uric acid. Therefore, if the arine is full of neutral salts, any came which will remove a part or the whole of the base will throw down a presupriate. The addition of acid will do this. Thus, if very acid urine be secreted into the bladder when this already contains a neutral or alkaline unne, the acid abstracts the base from the neutral salts and a deposit is formed at care.

The uric acid appears in the urine in the form of crystalline grains, or, if very abandunt, as a red smally deposit. In infants and young children there appears to be a special tendency to uric acid deposits; and these may be thrown down in the kidney itself before the urine has passed into the bladder. The so-called uric acid infarctions of the kidney, forming yellowsh red streaks running in the direction of the pyranids, may be found after death in the youngest infants—in them, indeed, more frequently than in older children. These infarctions consist of amorphous mate of amonia mixed with crystals of uric seid, and occupy the straight takes of the pyranids. They do not, my more than the sandy deposits in the urine, indicate the existence of kidney disease. They are due to excessive feeding, or, in young habies, to the increased notamorphous of tissue elements which must take place after birth in consequence of the newly-damagurated processes of digestion, requisition, and generation of

A deposit of crystals of uric scid may be formed at any part of the urinary apparatus. The urinary tabules often contain such collections. A particle of crystallised uric scid is deposited in the cortical part of the pixel. It may remain in this spot, or may pass further down the urinary apparatus into the straight tubes or the pelvis of the kidney. In either case it is upt to become enlarged by successive additions to the original tudens. Great irrelation is often caused by the passage of these fragtients, and even minute-crystalline porticles, if with sharp angles, may so stratch and wound the delicate membrane liming the fine tubules of the

kidney and calices of the pyramids, as to be a cases of hymotrhice. In spite, however, of the frequency of sandy deposits, the urine is childhood does not, as often as might be expected, contain an admixture of blood. At least, an intimate blending of the blood with the urine, such as is known to be characteristic of renal homorrhage, is in the child comparatively rare.

Besides are acid, or late of time concretions are not uncommon in children. These are dependent upon the same causes as the preceding. According to Schenck, are scal is converted by oxidation into oxaliane acid, and this is readily decomposed by both acids and alkalies, splitting up into exalic acid and uses. The oxalic acid at once combines with the base of any time salt which may be present, and is precipitated in the insolable oxalite of lines. This process may take place in any past of the unimary passages, and if crystals of oxalite of lines are found in warm urine before the fluid has laid time to cool, it may be inferred that they have been formed inside the body, and we should think of the possibility of calculus.

Bendes are said and evalute of time concretions, small calcula of the urates of ammonia and soda may be formed. Often the concretions are compound, and contain a nucleus of aric acid round which evalute of lime or unde of ammonia has been deposited. If the concretion be excrusted with phosphates, it is a sign that arritation has been set up in the bladder

or pelvis of the kidney.

Constitut. Some children have a greater tendency than others to the deposition of urar acid in the urmary passages. This tendency often runs in families, and is then commonly associated with the gouty constitution, The form of scrotala which is connected with a stout, heavy build, and much flabbiness of flesh, is also said to be distinguished by a similar tendeacy. In both of these cases there is no doubt an inclination to gastric disturbances and the generation of acid in the stomach. The setual deposition of aric acid crystals in the form of sand and gravel is apt to be excited by excessive or unwholesome shet-especially of indulgance in the more fermentable articles of food. Thus, large quantities of farinaceous substances, particularly where the starch is imperfectly cooked, and of fruit or sweets, any give rise to the formation of acid in the digestive organs, Too riese confinement to the house, especially in cold damp weather, may in some embjects local the urino with urin acid or six compounds. Indeed, any influence which interferes with the assimilative processes, such as fear, grief, and other depressing passions of the mind, over-futirue of the body, temporary febrile miments-all these comes may determine a precipitation of une said in the unmary passages. According to Dr. Garred, concontration of the urms from deficiency in the amount of outer excreted by the kidneys is a common cause of gravel in early life. In these cases the habitual pussage of red sand is computible with every exidence of good health. Amongst other cases he refers to that of a boy aged five and a half years, whose urins from day to day contained either arie acid crystals or deposited a copious red sediment almost immediately after it was voided. The whole quantity of urine passed in the twenty-four hours was only eithen omees, with a specific gravity of 1,031. Directly the child was made to take more fluid, so as to increase the quantity of water passed from the kidneys, wric seid ceased to be discoverable in the secretion.

Nyupture.—The pussage of the ordinary lithrates is no more a cause of irritation in the young child than it is in the adult. A holy may pass water thick and milky from the presence of urates without showing that he is sensible of any sunsual sensation while voiding the contents of his

blaffer. When, however, free uric scill is discharged with the urine, we usually notice signs of disconfort. Water is passed more frequently and in smaller quantities. The child screams and atrains during its passage, and, if old enough, complains of pain in the urethra. In these cases we shall often find red gritty matter on the infant's disper, or red and at the bottom of the clamber-pair. Sometimes, this irritation is a cause of wetting the hed at night, and therefore the water should always be examined.

for une acid erestals in cases of noctornal incontinence of unner

While still in the kidney these concretions may give rise to low or even
no symptoms. Senetimes the only sign of their presence is a more or
less capsons admixture of blood with the urmary water. If the concretions are of some size, the homorrhage may be accompanied by attacks of
pair in the kidney. Hamaturia in children, especially in infants, is usually
to be attributed to this cause. In the case of infants a stain of bright
blood is noticed on the wet disper. In older stations the blood is intomately blooded with the urine, and the mixture may have a deep red colour
if the homorrhage be coposes. The urine is acid, deposits alleanen on
boiling, and often crystals of uric acid can be discovered with the abun-

dant blood-corpustles under the microscope.

A little girl, aged four years, the ninth child of healthy parents, was abritted into the East Loudon Children's Hospital. No history of gost could be discovered in the family. Of the other children, four had died, one from whosping-cough, the others of brain discuss, nature unknown. The patient herself had always been a healthy child, with the exception of an attack of warscella in industry, until twelve months before admission. At that time the mother had begun to notice that the child's water contained blood. At first this had only occurred about once a work; but the frequency of the homorrhage had gradually increased, and during the premous fortnight blood had been passed every day. The norming urins, passed after the night's rest, had, however, been always uncoloured until a week before admission; since that time the passage of blood had been outlineous.

At first the mother had noticed no other symptoms, but after the honorrhage and continued for several months, the patient had began to complain of pain in the left side and back, at first only occasionally, but latterly several times in the day. The child cried bitterly, and attempted to relieve her distress by bending her body backwards across her mother's

knee, with her band and legs longing down.

On abmission, the girl was in good condition and had a florid complexion. Her weight was twenty-two pounds ten ounces. Her fiver and spleen were of normal size, and the heart and lungs were healthy. The abdomen was unusually compressible. The sorts and disc arteries could be felt pulsating on deep pressure, and both kidneys could be felt. They were not bender when touched, and seemed in every way normal. She passed water more frequently than was natural, but there was no poin in microrition. Her skin was not hard, acted fairly well, and there was no sign of ordern. The urine was dark with blood, of specific gravity 1.024, three down a repions precipitate on boiling, and showed an abundance of blood-corpuscies under the interescope. After a few days stellate crystals of uric and were also discovered in the sediment.

The child was kept in bed, and was given a mixture containing carbotate of potash. The amount of blood in the water gradually decreased, and in the days had quite disappeared. The urine then became perfectly normal, and cossed to contain allemen or blood-corporates. There were never any signs of casts, of purellent matter, or of mucus. No pain was noticed during her residence in the hospital, and she was soon discharged. About a month afterwards she was readmitted with the same symptoms, but they quickly disappeared as before with rest and alkalics. Her tem-

perature was always normal.

This case is a good illustration of the symptoms produced in children by renal concretions in the kidney. It would be difficult to attribute the hemateriz to any other cause. The significant fact that the bleeding recurred for the most part after exercise, and that until the amount of blood became excessive, the water was clear in the morning when the child first rose from her bod, were strong arguments in favour of uniarry concretions. The patient, besides, was in good condition, and of a healthy appearance, and although her hidneys could be felt on polyation, no increase in their size could be detected. Lastly, crystals of uric acid were found in the sediment.

Examination of the urine in these cases often gives a negative result. Calculus may exist in the kidney without giving rise to symptoms of any kind. Between the attacks of hematoris the water may contain neither blood nor alleaness, and unless sand or crystals of uric and be actually passing, it may redden litmus paper but family.

Sometimes the irritation produced by the presence of the calculus in the polyie of the kidney may set up pychitis. The stone then usually he-

comes enlarged by deposition of phosphatic salts upon its surface.

A child was admitted into the East Lemion Children's Hospital, suffering from tubercular meringitia. After death, which took place in two days'
time, besides the morbid appearances usual in such cases, the left hidney
was found to be extensively discused. The organ was much enlarged and
contained about two succes of creasy pas. In the interior it was hellowed
into cavities, and its proper substance was almost replaced by caseous
matter. A calculus of the size of a charry-stone was impacted in the upper
part of the orster. Above this, the areter and priviled the kidney were
much dilated. In this case, no doubt, the stone had first, by the traitation
it produced, set up pyelitis, and had then become impacted in the urster,
preventing the escape of the purulent matter.

When the concretion passes from the hidney into the ureter, and deenwards into the bindder, there is always pain; but the child suffers far less than an adult would do under similar circumstances. Sometimes an attack of abdominal pain in a child, attributed, as all such pain is apt to be, to abdominal derangement and colic, is followed by symptoms of stone in the blabber. It is therefore desirable in all cases where pain, more than ordinarily severe, appears to be suffered, to examine the state of the child's water, and imprire of the nurse whether sand or gravel has been seen at

the bottom of the chamber par-

If the stone becomes impacted in the arcter, serious consequences may ensure. The irritation of the fereign body in this situation may set up in-flammation, and give rise to thickening and contraction immediately above the sent of the impediment. Higher up the ureter becomes greatly distended, and the pelvis of the kidney may suffer dilutation. In some cases the pressure of the secreted fluid, accumulating in the channels above the obstruction, may flatten out the kidney into a thin-walled cyst. This is one form of hydronophrosis.

When the stone has entered the bladder, argent syngtoms begin to be actived. This affliction is more common in boys then in girls; probably for purely mechanical reasons. The arcthra in girls is short, straight.

and, when the child stands upright, almost vertical. In boys it is long and simous with a double bend. In the bisidier the stone produces great irritation. Pringens is common; and there is usually juris, which is increased by exercise. During mictimition the boy crice with pain, which he refers to the end of the genital organ, and endeavours to reheat by spacemy and rubbing the part with his fagers. The flow of urine often steps soldedy, from the stone being carried by the flow of water into the neck of the blakker, and there forming an impediment to the escape of the arise. Consequently the water is voided with effort, and the straining mry give rise to prolapse of the rectum. Actual retention may occur, the stone being tightly grouped by the sphinctor vesion, and imported at the beginning of the prostatic unethra. A little pure bright blood may be passed at the end of micturition, and the urine often gives evidence of severs cutarria of the bladder. Any of these symptoms occurring in a Loy should make us inquire very carefully into the cause of his complaints. It must not however, be forgotten that very similar symptoms may arise from different reasons. Dr. West has pointed out that in cases where the prepace is abnormally long, with a narrow opening, its olges may become very sore on account of the difficulty and delay with which mine is forced. through the orifice; and this may give rise to much pain in micharition.

Description On account of the frequency with which une acid concretions are found in the urino of children, it is evident that the delicate mombrane lining the tubules of the kidney is liable to be exposed to injury hou the sharp edges of the crystalline masses. Consequently axmorthego in such cases is no matter for surprise. The wonder, indeed, is that it is not a more common symptom of uric acid send in young persons. That it is not so is probably due to the fact that the unicated is commonly deposited from the urine in the bladder itself, and not at a higher point in the urinary apparatus. Sir Thomas Watson has recorded his opinion that many of the observe cases of Immaturia in the adult may be referred to renal calcali. In the case of children it may be had down as a rule that retal hemorrhage occurring in a child otherwise healthy, and accompanied by no symptoms, nor by harmorrhage from other parts of the body, is, in the unjority of cases, to be attributed to the irritation of crystalline unuses in

Not long ago I saw a little boy, agod ten months, who for six weeks had been passing water mixed largely with blood. Sometimes for a few mys together the water would be clear, but the hometuria spealily returned. The specimen brought with the child was bright crimson in colear, and consisted of blood and urine intimutely blended together. It had a slightly send reaction. Many blood-corpuscies were seen under the miconcept, ba no crystals of unic acid could be detected, although the medind attendant had occasionally found them in the sediment. The child had been brought up by hand and fed upon cow's nails and water. He had no teeth, could not stand, and showed signs of being undepartmentshed. The bowels were confined habitually; otherwise he seemed to surfer no dis-

comfort, and was said never to be poerioù or freiful.

the tubules, enlices, or pelvis of the kidney.

As the infant was evidently insufficiently fed, I rearranged his diet, ordering one ment in the morning of cotment (one temporated) with cow's make, two meals of Nestle's malk food, and two or three meals of Mellin's food with now's milk diluted with a third part of burky-water. I also prescribed a mixture containing the infusions of souns and gouties, so as to act gouthspon the child's bowels.

Some months afterwards I heard that the bleeding had continued for a

few weeks longer; that the child had then seemed in great pain for a day and a night; but that after this the water had become clear, and had ever since been perfectly free from blood. The matrition had begun to improve

turns liabely upon the change of diel.

There can be little doubt that the homesturia to this case was the consequence of arritation of the kidney by a small angular concretion; and the pain spekes of was, in all probability, an attack of recal colic, caused by the passage, or attempted passage, of the little calculus down the unter. In cases such as this, the concretions must be looked for carefully in the unine passed at the end of a fit of colic. They are often no larger

than a mustard-seed, or even a small pin's head.

Progress.—The occasional appearance of free uric acid in the urine of infants and children is of no consequence windows: The frequent pussage of sandy particles is of greater moment, for in these cases we are justified in fearing the formation of a stone in the bladder. A mere passing isomatoria should not have too much importance attached to it; for it is probable that a certain occing of blood may occur in the hidney, as a consequence of irritation from small crystalline fragments, which may be afterwards weaked away. Repeated hemorrhage from this source is, however, to be regarded with anxiety; and if there are signs of poin in the renal region preceding or accompanying the flow of blood, we have reason to feer the presence of a calculus, and further ill-consequences are

to be anticipated.

Trentmost.—The frequent appearance of write acid crystals, or of sandy deposits, or even the infittual presence of urates in a chief's water, about make us inquire very carefully as to the food he takes, and the general conditions under which he is living. Such a child should live plainly, He should take most once a day with regetables, and a light custard or batter pudding. For his other meals he should have milk and bread-andbutter, with occasionally the yelk of an egg or a little bacon for his breakfast. Care should be taken that he does not overload his stemach, and the quantity of farinaceous food he eats should be duly proportioned to Im power of digesting it. Sweet things should be given to the child with contion; and all cakes and biscoits between monte should be strictly fortodden. He should take exercise freely in the open air. His skin should be kept in good order by complete washing every day, and in the colder months be also be dressed from bend to feet in some warm weeklen material. Great attention should be paid to the centilation of his bedroom, and in the winter he should be dressed and undressed in a wellwarned rosso. In the case of an infant, vigilance should be exercised that the child does not take too large a quantity of food at one time, and that he is not hardened by too much farinaceous matter to his meals, Cleardiness and plenty of fresh air asset be always insisted upon.

In addition to the above measures, care should be taken that the patient drinks sufficient fluid to freely difinte the renal secretion. Remembering that a concentrated state of the urine is above sufficient to give rise to sandy deposits in the urine, the child should be made to drink half a turnbler of water, fisting, one bear before food, twice a day. This simple precaution, in many cases, will at once put an end to any appearance of sand. An infant may be given thin barley-water from his bottle with the

same object.

For medicine, alkalies, such as the citrate of petrols should be given, and the treatment must be continued for screeni weeks. If hancorriage occur, perfect not in tast must be enforced. These cases sciden require styptics, but if thought advisable, a few grains of gallic acid may be given

with dibute sulphuric acid twice a day

If, from attacks of pain or frequent humorrhages, it becomes evident that the shild has a calculus of the kidney, citrate of potash should be given in sufficient does to keep the urine slightly alkaline; and this treatment should be persovered with in the hope of dissolving the concretion, or at any rate of reducing its size sufficiently to snalde it to escape by the wreter. If great irritation and pain are produced by the continued presence of the calculus, and the health and strength of the child seem to be scriously affected, the question of nephrotomy should be considered.

In an attack of nephritic colle, the child should be kept under the infacence of morphia, and bot forcentations must be applied to the abdomen.

CHAPTER IV.

TUMOURS OF THE KIDNEY.

Truccus of the kidney are occusionally seen in children, and generally occur in the form either of a succonstons growth or of a hydronephrosis.

Sarconn of the kidney constitutes the ordinary form of renal camper met with in the child. It occurs usually at an early ago (the cases which have come under my notice have been all under three years old), and is usually confined to one side of the body. In the kidney, as in other or-

gans, the growth often reaches a very large size.

Morbid Anatony.—The surcoun is usually of the round-celled variety; but the tumour often contains, in addition to account tissue, strinted muscular fibre scattered as arranged in bundles. Under the microscope these tumours are found to have a fibrillated structure, some fibres being slightly spindle shaped, with an indication of a nucleus; others, more elemented, with signs of tomoverse striation others, again, well-developed, with distinct structure. But even in the best developed fibres no sign of a surcolumns can be seen. In some cases the new muscular and surcountous tissue is dispersed through the kidney substance, and the tumour is then really a tumour of the kidney. In other cases the new tissue seems to be separated from the kidney substance proper, although lying within the capsule; or it divides the organ into two parts without, as in the other case, infiltrating its substance. It has been suggested that these growths may be derived from the remains of the Wolffan hody.

Symptoms.—No pain scens to attend the development of these tumours, and at first there is little interference with the general health. Consequently, the earliest sign to attract the attention of the attendants is the unusual size of the child's belly; and the mother often complains that

the belly feels harder on one side than it does on the other.

On examination, in each cases, we find a globular swelling occupying one side of the abdomon. The swelling is usually little morable, and does not descend, or moves very slightly, in inspiration. Its borders are rounded, and there is no edge felt, as is the case with the spicen. Its substance is soft and clastic, so as to convey an imperfect sense of fluctuation. Below, the fargers can be pressed between the lower border and the bern of the points; above, the tumour passes beneath the later ribs; asternally, the swelling reaches backwards into the loin, and there is seldom any intestinal resonance to be detected between it and the spins.

As the tumour grows the only inconcenience felt is the weight of the mass in the obscence. The appetite is good, often exceptionally kees, and autrition is fairly performed. The urine is usually normal, although in some cases it may contain allowers and blood; and towards the end it

may be sently, with infrequent micharition.

After a time, as the size of the growth increases, accordary demange-

souts from pressure begin to be noticed. The earliest sign that the growth is interfering with neighbouring parts is usually an enlargement of the superficial released the abdominal wall from pressure upon the versions. This is often followed by orderns of the lower limbs and scrotnin. Sometimes the liver enlarges from pressure congestion; and dyspinon may be induced from pressure upwards of the displacing by the rensi mass. When these agas are noticed nutrition becomes affected, and the end is not far off. The child gets thinner, and soon wastes rapidly. His appearance becomes exchectle; uphths: develope in the mouth, and be sinks and dies. Before death the enacestica may be extreme.

These symptoms are well illustrated by the case of a patient in the East London Children's Hospital, under the care of my colleague, Dr. Donkin, through whose kindness I had several opportunities of samula-

ing it.

A little girl, aged two and a half years, was brought to the hospital on account of a weeling of the belly. The mother stated that she had noticed there months before that the belly was large and hard on one wide, and that a doctor had said there was a tumour of the abdomen. For a month the child had been languid and fretful, picking her nose, and mouning in her sleep. Now and then she had complained of abdominal pains, and once or twice she had vomited. The bowels were disposed to be

costice, and the water was occasionally milky (from lithates).

The child was fall-grown for her age and well nourabed. She did not look iff. The abdence was large and full, especially on the right side, and the superficial voins were distended. On palpation of the belly a large, out, smooth mass was felt on the right side, reacting from the liver to the lover of the brinn of the pelvis. The diagres could be passed under the lover border of the tumour, and above could be passed a little way between the upper border and the lover, the edge of which could be distinctly felt overlapping the upper part of the mass. Autoriorly, the swelling reached beyond the middle line of the belly, and its innits could be distinctly felt remaied and resisting. Posteriorly, the tumour passed landwards into the renal region, and its boundaries in this direction could not be ascertained, although when the child lay on her left side the resonance of the intestine could be made out posteriorly. In front the colon pould be detected lying on the surface of the swelling.

The whole tumour was very slightly movable; its surface was smooth; its substance electic, and it felt like a tense bug of fluid. There was no names; no enlarged glands could be felt in the groins or elsewhere; the edge of the from reached two fingers' breadth below the ribe; there was no unlargement of the spiceu. In order positively to enclude fluid, an exporatory puncture was made into the immour, but nothing but a little blood was withdrawn. The temperature remained normal after the puncture.

For a fortnight after the child's schaisson there was little change in the condition. Then, however, her temperature rose; she consist, and began to look ill and carenors, and a passumonia developed in the base of the right long. The urine became intensely soid, it was loaded with scales, and deposited large amounts of uris acid on standing; there was also a trace of albumen. The liver enlarged; the wins of the abdominal wall became engarged with blood; scalessa occurred in the lower binds; the face got dusky; general convulsions came on, with epistaxis and blooding from the care, and the child died in a few minutes.

On remainstion of the body a round-celled surcomatous tumous, the size of a focial head, was seen occupying the lower two-thirds of the right kidney, infiltrating its tissue. It was covered by the resul capsule. Its substance was of soft pulpy consistence in the centre, harder and former towards the circumference. There was one large Lamouringe into its lever part. The turnour pressed upon the inferior term cave, which was distended by a large decolourised thrombus, perforated in the middle by a claused of the diameter of a goose-quilt. The thrombus reached from the level of the turnour approachs to the right ventricle of the heart. The longand spleen were both much congruted.

This case may be considered a typical example of a renal tursors. The only doubt possible was as to the nature of the aveiling, and this the exploratory puncture removed at once. Flabilities, thus strikeled, the curity of any other form of solid growth made the diagrams of surcura

comparatively an easy one.

Sarcomatous tumours of the kidney generally grow rapidly, and the course of the disease is seldom protracted. Death often occurs within a year of the swelling being first discovered, and in the longest case life is

rarely prolonged beyond eighteen months.

Hydroxyphrons is almost invariably in children a congenital affection. It is often associated with some form of arrest of development, such as clubfoot, har-tip, imperforate mans, or absence of the prostate gland. Both kidneys are more often affected than one alone, and the most common cause is impervious preters or an imperforate pretime. According to Dr. Englisch, the obstruction may take its rise in the valentic folds, situated at the upper part of the preter, or at its lower part; and in five cases he referred the cause of the obstruction to a curving of the mescous membrane at the critice of the prethraints a diverticulum.

In case cases the disease is acquired during childhood from impaction of a calculus in the oreter. The other causes of acquired hydronephrosis, viz., retrodexica and prolapse of the wamb, etc., do not come into play

until a more advanced period of life.

Whatever be the cause of the retention, the essence of the discuss consists in accumulation of urine in the petris of the kidney. The pressure of this fluid produces very serious consequences. Every degree of dilatation of the parts is seen according as to whether the fluid can partially escape or is wholly retained. In every case the renal pelvis is grantly dilated, but there are many degrees of alteration of the kidney substance, from more flattening and toughening of the papille to actual conversion of the cogan into a membranous sar filled with fluid. If the obstruction is low down in the ureter, this tube is also dilated and its wall thickened. The fluid has a low specific gravity, and contains the elements of urine although in bubble proportion; i.e., area, and acid, under, and often crystals of ornito of lime. Its reaction is faintly alkaine. Its colour acclear amber or turbail, and may be yellow from pass or reddish from blood. Sometimes it contains epithelium, and in rare cases the consistence is increased to a thick fatty fluid.

Symptons.—Although almost invariably congenital, the hydronephronis is often not noticed until several months or even years have clapsed from hirth. The mother then observes that the abdomen is colarged, and that the chief swelling is limited to one side of the brily. Her attention being thus directed to the child's abdomen she finds that this progressively in-

creases in size, and a medical practitioner is consulted.

The immour is a painless one and forms a soft clastic swelling in the situation of the kidney. The cost sometimes reaches a large size, and may come great incorrections by its weight, or interfere with respiration by pressing upwards against the displaragm. The lumbur region on the affected side is then seen to be prominent as the child lies on his face, and factuation is transmitted freely from the front to the tack. In n case recorded by Dr. Hillier—a child three years and a half old—the swelling siled the whole abdomen, and five pents of clear non-abhuminum find were withdrawn by tapping. Sometimes an escape of some of the returned find occurs from time to time, and the size of the tumour may thus undergo marked variations. If the accumulation be due to as impacted extension, attacks of applicatic colic may occur, with bloody urase. If both kidneys are affected, and the escape of fluid is entirely prevented, the child may die with symptoms of urasmis. Such a combition is of course incompatible with hife, and if it be a congenital one, the child is generally stillborn.

Disposes of Bond Tensors.—We have first to satisfy curselves that the bimour is due to enlargement of the kidney, and then to ascertain the sature of the swelling. In order to arrive at an accurate diagnosis, a careful examination of the abdomen is of course independable; so that if the child is fretful and unmanageable, crying and contracting his abdom-

iral walls, he should be put under the influence of an anisotictic.

A rounded mass in which no edge can be detected, attented in the region of the kidney, and little affected by respiration; one which does not dip into the pelvia, but passes upwards to the liver or spleen and backwards into the lumber region—such a temporr is in all probability an enlarged kidney. Recal tempors may be confounded with temporrs of any other abdominal organ, or indeed with a swelling anywhere within the abdominal cavity.

On the right side the renal enlargement must be distinguished from a tumour of the liver. The latter rises and falls with respondent, and will be noticed to be close up under the ribs so that the fingers cannot be passed between its upper border and the displanges. Moreover, a kepatic functor is rarely covered by a coil of intestine; and on careful manipulation the edge can usually be detected. This, of course, at once excludes the kidney, for a kidney, whether calarged or not, is rounded in all directions.

On the left side a splenic timour must be excluded. Enlargements of the splent are very common in children, but they can never be mistaken for a kidney by a careful observer. An enlarged splent lies very superficially; its position is markedly influenced by respiration; it is freely morable; it has a distinct edge towards the middle line, in which the notch can usually be full, and its upper border passes upwards beneath the ribs.

On either side the renal funour may be mistaken for a mass of enlarged glands, a peers abscess, feed accumulations, and, in girls, overim enlarge-

ments

Enlarged glands lie very deeply against the spins, and have to be fest for with care. They are only slightly neousble. Still, pulpation alone may be insufficient to distinguish a seeding of this kind from an enlarged kidney. By attention, however, to the general symptoms, we may assaily surive at a conclusion. A kidney only slightly enlarged from surcoma produces no impairment of the general health: while caseous glands, sufficiently large to be detectable by the teach, are associated with a history of ill-health or of more or less interference with nutrition. The patient has nutrilly sufferred from attacks of distribute, and may perhaps have sogne of chronic ulceration of the bowels. In such a case he would look ill even although the howels were not actually loose.

A page absent like a resul tometr, occupies the region of the leits and extends forwards into the belly. It is, however, placed more deeply

than a fursion of the kidner, and cannot be so costly felt. Little information is to be derived from the presence of fluctuation in the aveiling; for this is difficult to ascertain in a panus abscess, and a successarious kidney correspond sense of pseudo-fluctuation which is often very deceptive. A far more important distinction is that furnished by the setual position of the mass, for a renal tumour reaches far higher in the abdomen than an abscess. Moreover, the latter is distinctly tender on pressure, while the kidney tumour is quite painless. Lastly, in precessarious, although there may be no enventure of the spine, expend examination will often discover the existence of discuss of the vertebra (see page 185).

Other abscesses in the neighbourhood of the kidney can usually be detected by their emsing colorgement behind in the renal region. According to Sir William Jenner, this is rarely the case with a simple swelling of

the kidney.

Freed accomplation may be, perhaps, mistaken for a renal tomour; but a mass sufficiently large to give rise to healtation must be very rare in the child. Excal lumps lie very superficially, and can be indented with the farger. Besides, they can be cleared many by a copious injection.

Omman functors are constines found in little girls. These dip down into the pelvis, and the fingers cannot be passed beneath their lower border. Moreover, they are rarely covered by soils of intestine. These are

all pressed away towards the lateral regions of the grein.

Having ascertained the existence of a renal busious, it is sometimes very difficult to decide upon its nature. If the tumour he double, or be accompanied by signs of severe nephritic rolls, it is probably due to a hydronephrosis. So, also, if the swelling is noticed to be dimensioned in size after a copious flow of uring, it may be attributed to the same condition. Usually the doubt can be only removed by an exploratory puncture of the swelling. If fluid be withdrawn containing urea, there can be no further headation as to the nature of the tumour.

The distinction between hydronephrosis and ascites is described in the

chapter treating of the latter disease (see page 703).

Tiretanni In come of surcome of the kidney we can do nothing but attend to the general nutrition of the patient. In the case of hydrotephysis:-If occasional reductions in the size of the turnour laste been naticed to follow a comous discharge of urine, friction and shamposing of the abdomen such as proved successful in a cuss reported by Dr. W. Roberts, may be made use of. In other cases occasional tapping may greatly relieve the patient. Dr. Day reports a case in which arphreciarry was successfully performed by Mr. Knowsley Thornton, and the child re-covered. A care may, however, he affected by a less serious operation. B appears from a case recorded by Dr. Tuckwell, and Mr. H. P. Symonds, of Oxford, that persistent dramage of the me more ecceptions had to its shrinking and contraction. In the case referred to-a boy elemen years of age an incision was made into the sac in the limber region, and a large drainage-tube was introduced through the opening. Antiseptic dressings were employed, and at the end of thirteen weeks from the operation the tube was finally removed. The child recovered perfectly, and six mortisafterwards to sign of the temous could be discovered on examination of the belly. Operative interference in these cases should not be undertaken unless a healthy state of the urine indicates that the opposite kidney is free from disease.

CHAPTER V.

VULVITIS.

Very res, or vulvo-reginitis (for the estarchal inflammation of the nucous membrane often penetrates for some distance into the vaginal canal), is very common in little girls. The complaint may be seen at a very early age, even during the first few months of life; but is more common in children of five years of age and upwards. M. Parrot has described a cariety of the derangement which he calls "aphthous valvitis," and states that it is met with most frequently in children between the second and

fourth year.

Counties.—Catarrial valvitis is especially common in children of scrotulous constitution, and appears to be excited by want of cleanliness and insunitary conditions generally; also by local irritation in the neighbourhood, as by assurides in the rectum. In very rare cases it may be the consequence of sexual violence. Certain forms of the complaint appear to be contagious and capable of being communicated from one child to another by spanges or towels; and Dr. Atkinson, of Baltimore, has stated his belief that the discharges from a partilent ophthalmin may be conveyed to the valve, and set up a similar inflammation in that situation.

Vulvitis is sometimes a occordary disease. Thus, it may come on after some of the acute specific diseases. Parrot has som uphthous vulvitie succeed most commonly to measirs, next to whooping-cough. He has also not with it after varicella, reysipelas, pneumonia, and diphtheria. In

only a few cases was it apparently a primary derangement.

Symptoso. In catarrial valvitis a puralent discharge may be noticed to issue from the valva. At first it is assuty, and is seen on the child's holy linen. On inspection of the parts the mineous membrane is found to he red, and the larger labra to be a little swellen. The discharge is yellowish or greenish in colour. It is usually fetid, and in many cases is wry profuse. In hospital out-patients, who are often neglected in the matter of elevaliness, the opening of the vagina is often found bothed with a thickish, yellow, offensive matter. If the catarrh is not quickly cured, it may lead to considerable awilling of the labit, and the mucous membrane may become exceptated. In these cases there may be some pain in walking ; and if the estarth extends to the orifice of the urethra, there may be starting in micharition. There is not availly my enlargement of the ingainal glands; but in bail cases, occurring in unhealthy, neglected chilsires, trritable sores may form on the inner surface of the lates, and the glands may then become slightly evolven, and a little tender. I have been supportation of these glands. If left untreated, opentaneous recovery may take place, or the discharge may become chronic, and persat for months or even years. The swelling in these cases subsides, but thin perulent matter, small in quantity, continues to be secreted. I have

thought, in some of these chronic cases, that irritation has been kept up

by a habit of masterbation.

Aptitions sulvitie, according to Parrot, attacks the labia majora, and sometimes the smaller lips and the chitoria. From these parts the aphthons inflammation may special to the genito-crossl folds, the groins the peri-teents, and the borders of the axiss. It begins by an eruption of small. rounded, or semi-spheroidal elevations of the epidermis, of a grayalt white celour, and often depressed in the centre. The little patches closely resemble the aphthous spots on the burcal mucous membrane, and are surrounded by a red, slightly-swollen ring. In number they are five or six to fifteen, and may be placed singly or in groups; sometimes they are After a period varying from thirty-six hours to three-days, the patches give place to ulcors which have a gray or yellowish base, and a red border. They cause considerable irritation, which it is difficult to prevent the patient from relieving by the use of the fingers. At the beight of the discuss the edges of the sores are raised, and the parts around, especially the miner labes and the clitoris, are swollen and bright red. Under suitable treatment the swelling soon subsides, and the olders heal; but in unhealthy subjects the lesion may take on a gangrenous process. When this occurs the constitutional symptoms are severe, and the gangrens may spread extensively, and present all the features described elsewhere (see Gangrens of the Vulva, page 170).

Dispussis.—Valvitis is a very common derangement amongst the children of the poor, but may be found in any condition of life. Knewing its frequency, we must be on our guard against accepting any suggestion (such as some mothers are very ready to make) that their child has been tampered with by a person of the opposite sex. If this have really taken place, we should expect to find exchanges and recent almusious of the external genitals. The hymon is rarely reptured, on account of the small-

ness of the passage.

The aphthous spots are distinguished from nuccess patches by the absence of all signs of constitutional symptoms in the child. The ulcers are distinguished from reportal series by the absence of any hardening at the base. Moreover, the latter are never grouped or confluent, as is almost

invariably the case with the aphthons olders.

Treatment.—The atmost elevatiness must be observed. The parts should be bathed frequently or syringed with warm water, and afforwards a little plodget of cotton-wood, scaked in a mild lead lotion, should be passed between the labia. If the estarrhed inflammation seem to have extended into the vagina, the lotion may be injected with a springe. If there he great irritation of the parts a weak solution of perchleride of mercury (one grain to eight owners of water) may be used instead of the lead. If the case he obstinate, the parts should be well dabbed with a weak solution of nitrate of silver (gr. vj.-x. to the owner of distilled water).

Dr. Guillard Thomas recommends for all obstinate cases the careful syringing of the vagins with warm enter, and the use afterwards of a letion composed of one sume of black wash to the pint of water. The letion saust be injected with a syringe twice a day, and on each occasion the passage must be previously cleaned by careful injection of warm water. Dr. Thomas attributes the chronic course of many of these cases to the imperfect application of remedies. He argues the importance of instructing the norther in the use of the syringe, directing her to introduce the nearly of the instrument well into the ragins, so that the upper part of the passage is reached by the fluid. In all instances where the child is arsemic or of arrefulous aspect, iron wine and cod-liver oil should be given internally. Core must also be taken that the bowels are regularly relieved, and that objectionable

habits are no longer continued.

In the splithous form of valvitis, Parrot recommends the me of the powder of sodoform once a day thoroughly after careful washing. He then applies a covering of lint. Parrot states that this application quickly

cures the sores, and prevents the occurrence of gangrene.

Part 12.

DISEASES OF THE SKIN.

CHAPTER L.

DISEASES OF THE SKIN.

Is childheed the skin shares the general susceptibility of the whole system, and is very liable to discuse. At this period of life the surface of the body is delicate and readily instated by the presence of accumulated dist and dried secretics. Amongst the poor, neglect and want of cleanings are common causes of entancers affections in the young. Moreover, in the young subject, gastro-intestinal demargements are especially liable to be accompanied by the various forms of crythena; and childheed appears in itself to increase the susceptibility to the paractic discusses of the skin. In a work treating of discuss in early life, a consideration of the various cruptions to which childheed is liable must not be entirely neglected; but attention will be confined to the more common forms of skin discuse met with at this period of life, and the subject must necessarily be discussed accumulate cursorsly, and sheetly with a view to diagnosis and treatment.

The popular cruptions do not require very extended notice. Lichen is very rare in the young subject. The form called fiches serious is the need common, but this emption appears to be more a modification of acttio rask than a true lichen, and will be afterwards referred to under the

head of urticans.

Provings is occusionally met with in dirty, neglected children in the form of slightly projecting papelles, which give rise to considerable trutation; but in early bit the rash scenes to induce a less intense form of itching than that which is a carse of so much suffering to oblir persons. Mr. Hutchinson has described a prurigo of infants which appears often to be a sequel to or modification of chicken-pex; and he is disposed to believe that an abertise varically is often the original cause of the outbreak. The papelles are hard and cough, and may be mixed up with wheals of articaria. In some cases they are large, and resemble half-developed wheals of actile-mak, "with parkups even some tendency to vesication." The itching arising from the cruption is often greatly relicred by the use of earn buths, medicated with the liquearbenis delergens, in the proportion of two traspoonfuls to the gallon of water. This buth should be used twice a day. The skin may be afterwards anomated with a solve composed of one owner

of storax, two dractums of white wax, and half an ounce of olive-oil. If the cirkle is feeble or delicate, cod-liver oil and iron wine should be prescribed, and the dist should be regulated on the principles elsewhere recommended

(see Enfantile Atrophy).

Stropholes is a common emption in infants, and usually arises as a consequence of laboured digestion. It is not with in two principal forms—a red and a white cursety. Red strophulus consists of small red papales of the size of a large pin a bend. These papales often occur in groups, and occupy the face, the trunk, and sometimes the limbs. They cause some string. In white strophulus the endour of the papales is painty white. Each papale lasts a few days, and the rush usually comes out in successive crops. It is not accompanied by any general symptoms, and the only treatment required is attention to the digestive organs, and some necessary modification in the diet.

Of the vesicular and bullons group, kerper and pomplogue are both far from rare. Herpes of the lip is as common a symptom of croupous prenmonia in the child as it is in the adult. Herpes of the pluryux is desaribed elsewhere (see page 580). Herpes zona is comparatively rare in the child, but is sometimes seen, and then differs hittle from the same cruption in the adult except that it is much lass frequently followed by

intercostal neuralgis. It requires no treatment.

Pemphigus is occasionally met with in the child. In new-horn industs a syphilitic form of the disease is not uncommon, and usually indicates profound contamination of the system. Syphilitic pemphigus is referred

Pemplagus attacks ill-nourished-children, and may be found to openr during convulencemen from acute febrile diseases such as acarlatina. It is also apt to be seek with as a frequently recurring complaint in children of furly robust appearance, and in such cases it is difficult to know what is the case of the repeated returns of the ballous cruption. In the more common variety of the disease the cruption begins in the form of small red spots. On these spots the cuticle rises rapidly into a bob, which incremes in size until it is as large as a marble or a walnut. The bindiers thin formed are tense, and filled with fluid, and their base is surrounded. with a red zone of inflammation. The finid is at first clear, but soon becomes spague. The blobs may last unbroken for some days, but usually they burst very early, and give place to thin yellowish brown scales on a perplish ground. The eruption comes out in successive crops. Many tables do not appear at one time, but the repeated succession of crops cours the body with bladders, crusts, and stains from the various stages of the affection being simultaneously present on the skin. All parts of the body may be affected, even the lips and the ears, but the palms and soles negally escape. The appearance of the emption is accompanied by some constitutional disturbance, which is often found to vary in severity according to the extent of surface involved in the discuse. There may be some fiver. In a boy aged eight years, who was admitted into the East. London Children's Hospital with extensive pemphigus, the temperature during the first three days was over 101" both morning and evening, and for a fortnight afterwards it rose sometimes in the avening to 29.8° or 100°. Thirst, restleronce, and less of appetite are also noticed, and there is sometimes distribute. The eruption at first may be accompanied by some tirking, but after the bursting of the blebs the resulting sures cause pain and emarting.

An occasional form of the disease is that called people's address,

where a single bleb rises on the hand or foot, often on one finger, and quickly attains a great size. Sometimes the bleb involves the whole of the hand. Mr Naylor described a variety of pemphagus which he called "pemphagus diations in children." This form begins like ordinary pemphagus as a small red spot, which becomes a bleb and middly enlarges. After the blabber has ruptured the sore still continues to spend, and becomes covered with a thin wrinkled creek with a narrow raised rim, the remains of the bleb. The disease appears to be a purely local one, and the general health is quite unaffected. Dr. R. Leveing less doubts if this affection be a true pemphagus.

The sore of pemphigus, like other sores, may assume a gangrenous form in unbealthy, cachectic children. The resulting condition is very much that already described as a consequence of gangrenous varicella (see

page 49).

The denotion of the disease is apt to be prolonged, and sometimes the cruption returns very rapidly after appeared care. The acture of the affection can hardly be nestaken, for the large blobs or blisters surrounded by healthy skin are pathognomonic. Blobs are often seen in the course of other forms of skin disease, such as scaling recents, crystpeles, etc. In the latter makedy the extensive problemed, brawny surface on which the bladder is scated will be a sufficient distinction. In the case of the two former complaints the characteristic appearances peculiar to these disorders will be observed. The bullous syphiloderm is distinguished from penghigus by the presence of other signs of the constitutional disease. In infants bullous emploies are commonly of syphilitic origin.

The best treatment for peruphique is around. The remody should be green in full doesn, for a child of an years and upwards will take doesn as large as those usually prescribed for an adult. If the irritation and discensions of the skin and general across disturbance present sleep, optum is useful, more especially as in the opinion of experienced observers the drug has a direct curative influence upon the disease. It is especially serviceable in the early acute stage. The sores on the skin must be kept very clean and treated with some much application, such as a lead lotton or

zac cintment.

Estimuatora proteirs are very common in early life. In children of all ages, irritation of the skin is very apt to be followed by the development of large flattened postules seated on a broad loss and surrounded by a red zone of inflammation. Their favourite seats are the face, hands, and feet. The subjects of the complaint are often under-neurished, and it is therefore very often even amongst the cinbiren of the poor; but in all ranks of life any demagament or other cause which determines a temporary reduction of strength appears to have a predisposing influence in inducing the eroption. Such children are usually pale and flabby, and in themmy slight scratch may be followed by a festering sore which continues unhealed as long as the debility from which the patient is suffering remains meetiered. Quining has a specific influence in remesting this troublescene affection. After the alkaloid has been taken for a few days or a week the pustules disappear, the seres heal, and the child is well. In all these cases the diet should be attended to and any error of feeding corrected. A little wine is often of service, and the child should have plenty of fresh air and exercise.

A saild form of provious to met with in children. The emption usually occurs in the form of persons guitata the little patches being scattered about, not very thickly, on the trunk and limbs. The patches are essally small, of a pule red tint, and are more or loss only on the surface. They may be attended with slight itching. Prorises is seldom obstimate at this period of life, and usually yields without difficulty to arenical treatment. Sometimes, however, the perchloride of mercury seems to be more useful than arsenic. As a local application the anguestum picis, or a mild clarysophanic aris obstruent (gr. x. to the ounce of lards, may be made use of

The percent discusses of the skin will be described afterwards. In the present chapter reference may be made to the form of discuss called size a arears, which is not unfrequently seen on the heads of children of five years of age and upwards. The discuss is characterised by the loss of har in spots on the scalp. At these spots the hair-bulbs alrephy, and the laws, growing book, are shed without undergoing any other alteration in structure. In this way bald publics are formed, in which the scalp is completely ensocth, white, and hairless. At the curumference of the patch the hair grows thickly as on the unaffected parts of the head. The number of patches may be one or more, and they may apread so as to unite and almost denude the head of its hair. At one time the discuss was thought to be parasitic, but it is now allowed by most pathologists to be a simple alrephy of the hair-built; and the hairs committed microscopically are found to resemble in every respect those which are east of in the natural process of decay.

The discuse usually tends to spontaneous cure. The hald patches become countrially covered with a fine down which grows thicker and durker until at last the spot ceases to be recognised. In some cases the new lairs remain colouriess and give a curiously variegated appearance to the head. In others the hair is only partially reproduced, so that in places

the scalp may remain permanently buld,

The only treatment for this condition is energetic stimulation with irritating applications, such as tincture of indine, cantharides, etc. Dr.

Then recommends sulphur sintment.

The above varieties of cutaneous eruption may be dismissed without further notice. There are, however, other forms of skin discuss which from their frequency or importance require a more detailed description. The following chapters will therefore be devoted to the consideration of the crythemata, scarm, molluscum contagiosum, the parasitic discuss, and schrema.

CHAPTER IL

THE EXYTHEMATA.

Is the crythematous group of skin affections the rush presents itself in the form of slightly miss I patches of redness. These patches are of variable size and shape, give rise to little or no constitutional disturbance, and rus a very rapid course. In all cases the redness shows a smooth surface, without scales, and disappears on pressure, returning when the pressure is removed.

The varieties which will be described are: - Erythema simplex and its

varieties; erythems nedosms; urticaria, and roscola.

ERYTHEMA SIMPLEX.

The simple variety of crythesia appears to be in many cases the consequence of digostive disturbance. The man is seen in the form of patches, often of some considerable size. The colour is red, beight or inclining to be shady; and the affected part is in most cases sensibly elerated from exadation of serum and leucocytes salo the cutis and subcutaneous tissue. The duration of the rash is variable. In the commonest form, which is called erathesis fugue, absorption of the exaded matter takes place very rapidly, and in the course of a few hours the redness has completely disappeared. This form is common in the face of a child who is fed injuliciously, and suffers in consequence from fermentation and neighby. The patches are of very irregular shape and are imperfectly circumscrabed. They are often accompanied by some irritation or a sense of tingling. Tarry in little swelling of the skin; indeed, the affection appears to be little more than a entineous hyperanon. When the srythenic occurs in small mixed blotches it is called crytheast papalateus. The righ then consists of flattened red spots of the size of a large pin's head or a pea. Their margin is well defined and they are accompanied by some little irritation. A common sust of the eruption is the extremities, and it is rare on the trunk and face. The rush lasts a few days, then begins to fade, and assumes a Idaish tini before it finally disappears. If there has been much swelling a slight desegnantation is left on the skin.

A consistent of crythemia in infants is that known as crythesia retedropo. In this variety the redness appears between the folds of skin in far bubbles, and seems to be this to the friction of adjacent surfaces upon one another. It is seen in the neck, armeits, groins, and mase parts of the thighs. If the redness does not quickly disappear the surface becomes moist and slightly excernated. It is then often called excess supertripola severe cases linear electricism may be seen to occupy the bottom of the folds. In this stage the disouler can no longer be considered as a mere crytheme. The ulcers have sharp, inflamed edges, and pour out a sero-

puralent fluid in considerable quantities. A variety of crythemn interirigo. is the superficial dermatitis which is common in children who nuffer from charrison. The irritation of the discharges from the bowel produces a more or less extensive crythems of the buttocks and perimsum, which,

however, quickly disappears under treatment.

There is one other form of crythems which requires mention, viz., that which is produced by the action of belladonna upon the system. This form of erytheum resembles very closely the rask of scarlatina. In some children it is induced very readily, and is not to be taken as an index of the susceptibility of the system to the action of the drug. The readiness with which it is produced some to depend more upon the sensitiveness of the skin than upon any intolerance of the drug special to the individual child. As a rule, young subjects our take large quantities of belladonna without inconvenience; and in some cases we find the characteristic rish developed in a child in whom much larger doses are required to produce any dilatation of the popul.

Diognosis.—These varieties of grythema simplex can scarcely be mistaken for any more serious disease. If the patches are of some size, they are distinguished from crysipeles by the want of sharp outline, the lighter colour of the reduces, the absence of any bravery sensation to the finger, the normal temperature, and the entire obsence of constitutional disturbance. Erytherns papulatum may perhaps be semetimes confounded with mendes, but it is distinguished by the larger suo of the blotches, the smatof prescentic arrangement, the limitation of the rash to the extremities,

and the absence of enterpial symptoms and fover.

Treatment -In ordinary crythenia little treatment is required. Any dipositive disturbance must be remoded, and it is well to act upon the bowels with a moderate dose of rhubarb and soda. If the rush persists after twenty four hours, a mild disphorene may be administered, such as hip monome acetatic with spirits of chloroform, diluted with water.

In erythema intertrigo the part should be bathed with warm water and carefully dried. Afterwards, a piece of lint wetted with unboiled white of rgs, or a weak lead lotion, should be inserted between the folds of skin and the affection is quickly at an end. If there is constipation; a mild aperion -meter-oil, or rightry and sods-should be a iminatered. If alceration lave occurred, the part should be washed frequently so as to prevent acconsistion of secretion, and the same application should be made use of The erethema, which is excited by the irritation of hecal discharges, quickly sinds to frequent bathing with warm water, careful drying, and dusting with lycopodium, or with a powder composed of oxide of zine diluted with three times its weight of starch.

ERTTHEMA NODOSEM

Although srythems nodesum is usually included emorget the varieties of crythems, it is right to any that the affection is looked upon by some observers us a specific illness which ought properly to be classed with entoric fever and the other varioties of neute specific discuss. By others the complaint is supposed to have a distinct connection with the riscumsticconstitution, and there is no doubt that it often attacks the subjects of chearantism.

The appearance of the rash is often preceded by pains in the limbs. and Institute. The spots themselves are large oval patches or smollings. of a rosy redwint, and measure from one to three or four inches in their long dimneter. They usually occupy the front of the legs and are accompanied by some tenderness. At first they are hard, but after a day or two become softer, and may even give a scanation of semi-fluctuation to the finger. At the same time the colour grows more and more purple until it finally disappears, leaving a yellow discolouration of the skin. The patches are almost always present on both legs, and sometimes attack the forcurns as well, or even other parts of the body. Their number is usually eight or ten.

Each swelling goes through the changes characteristic of a brane, always turning first purple, then yellow, and lasts for two or three weeks. The duration of the complaint is, however, often much longer; and convulencence may be considerably delayed by the appearance of successive

crops of the nodess patches.

A little girl, aged (welve years, was a patient in the East Lendon Children's Hospital. The girl had been suffering for nine weeks from sucreasize crops of large red blotches which occupied the forcarms and legs. There were also a few on the belly. They began as small red spots, which grew larger and became elevated and swollen. Their colour afterwards become purple and they then faded away like a terrise. The child was said to have laid a similar attack two years before. She had complained for a fartnight of pairs in the joints, and her knee had been swollen for a week or ten days.

While the patient remained in the hospital various joints were in turn swoten and points). After the knee had recovered the right wrist became affected, and later the articulation of the jaw on the right side was painful. Afterwards, the pain and swelling returned to the wrist. There were no signs of cardiac mischief; and the temperature was always normal in the morning, rising at night to between 90° and 100°. She was said never to

have had rheumstic fever. Her urine was normal.

The child took toolide of potassium, quinine and from without benefit, but improved directly the treatment was changed to dracken doses of oil of turpentine. Under this remedy she quickly recovered her health. The medicine produced little sperion action on the bowels

According to M. Germain See, erythema nodosum is apt to be complicated by disorders of the requiratory apparatus, especially plearisy and

broughs-pacumouis.

Insurance.—Erythems nodosum cannot be nistaken for any other form
of eruption. The large oral soft swellings seated upon the front of the
legs, their tendemess on persone, and the successive changes of colour,
such as is characteristic of a bruise, which the swellings undergo in their
progress to recovery, can leave little sloubt as to the nature of the complaint. In purpose bruise-like patches are often seen, but the spots are
much smaller, are not elevated, are accompanied by no tenderness, and
are not altered in colour by pressure of the finger. Moreover, that discase is often accompanied by immorrhages, which are rever seen in uncomplicated crytheness nedessant, and the large bruise-like patches on the
skin are mixed up with small deep-red poteches. It must be remembered, however, that the two discusses may occur together, for crythenes
nodessum is an occasional complication of purpose.

Treatment — The patient should be kept in bed and he treated with quinine; and the bowels should be kept regular with mild aperients. No local treatment is required unless the tenderness of the patches and the prine in the limbs form a subject of complaint. In that case the limbs may be wrapped in cotton-wool. In the more chronic cases where successive crops of swellings appear, oil of turpentine may be given, as in the case narrated above, in doses of one or two drachms three times a day. The child may have ment once a day, but no potatoes or sweets should be allowed while the pains continue troublesome.

URTICARIA.

In urbicaria, or nettle-rash, the crythematous eruption appears in the form of wheals which produce the most distressing irritation. The complaint may be acute or chronic, and sometimes continues with varying intensity for months or even years. In the acute form, nettle-rash is a common consequence of indigestion and acidity, and is often exceted by special articles of food, such as shell-fish, numberouse, etc. Insummry conditions have been said to have an influence in promoting the disorder. Whether this be so or not, the affection is no doubt common in neglected children amounts the poor. In such cases it may, however, be the consequence of unclaudiness, for in subjects with delicate skins external irritation above will set up the complaint. Thus, the eruption may be produced by pediculi, and is a not uncommon complication of scalies and centure. In the chronic variety nettle-rash appears to be in usury cases a disorder of purely nervous origin; for the emption is often quite manificanced by molifications of diet, while it yields readily to large doses of quinne, as will be afterwards described.

Sympleses.-In its common form the righ consists of a number of small elevations which rapidly increase in size and become white in the centre with a red border. These whouls are of various sizes and shapes. The smaller may be of the diameter of a pea; but the larger may measure one or two inches in broadth and reach a considerable elevation above the Sometimes the spots assume an elongated form like thick streaks; or, again, may appear as a bright red more or less diffused erytheratous binsh. In my case they give rise to a stinging irritation which necessitates repeated frictions for its relief. The itching, however. is increased by the means used to relieve it, and the act of rubbing and scratching the skin produces a fresh crop of spots. The course of each individual wheal is very short, for the spots come and go with great rapidity. Any part of the body may be affected. The wheals may appear on the face, the hands and feet, the limbs, and the trunk; and the rash is usually roughly symmetrical. Sometimes the emption is not limited to the skin but affects the mucous membrane as well. Thus, the tongue or throat may sufficiely swell up and prestuce alarming symptoms; but the swelling subsides again as rapidly as it arose.

In acute articaria there may be well-marked constitutional symptoms. The mak may be preceded by fever, a forced tongue, consting, a quick, feeble pulse, stal in some cases a distressing feeling of prostration. These symptoms are greatly relieved when the wheals appear. An acute attack of metils rush insta from a few hours to several days. Even in this about time, it varies much in intensity, and is usually greatly aggravated at

mght.

In the shropic form, the disorder continues for months. Its course is always very variable, and is subject to occasional remissions, so that it more resembles a series of neutrino sub-acute attacks. In this form the traption may be confired to certain localities (articaria conferta), or may

be general and affect all parts of the body indiscriminately. The wheals are sometimes mixed up with small papular projections, and the complaint is then called factor orderance. Another variety of the chronic complaint is that called by Dr. Sangster orderance paymentage. The wheals are here

very persistent, and have yellowish pigmented spots on the skin.

Paspeoux.—Unicaria is readily recognised. The characteristic wheals rescending exactly the sting of a nettle, the irritation to which they give rise, and the rapidity with which they come and go, leave no room for lexitation. The severe constitutional synaptoms which sometimes preveals the neutre attack might conceivably arms from so many causes that no opinion should be hazarded until the cruption appears and explains what was observe. The beginning of the counthemata may be marked by similar phenomena, and the metastasis of mumps to the testicle or breast is occu-

sionally preceded by like symptoms.

Decimal.—In acute nottle-mak it is important to attend to the condition of the digestive organs. If there he my merses, a mild cuctic, such as a dose of specicumina wine, should be administered; and the child should like plainly for a day or two, without excets or excess of starches in his dist. For medicine, an aperient dose of rimburb and soda will usually put a spendy end to the attack. The itching, while the cruption continues, will be greatly relicced by dabbing the surface with a solution of symble of potassium (one drachm to the pint), or with the lotion referred to by Sir Thomas Watson, composed of a drachm of carbonate of amusonia and the same quantity of acetate of lead dissolved in eight owners of water.

A worm both at hedtime in some cases is found very scothing.

In change inticaria success of femocratible food is to be avoided; but the most careful dieting will often produce no beneficial effect upon the eruption. In the majority of cases, whatever be the cause of the persistcare of the disorder, it will be found to yield readily to full doses of againine. I have used this remedy for many years, and have not yet met with an instance of its fathere to put an immediate and to the complaint. The dose should be large, and may be roughly calculated at one grain and a half for each year of the child's age. The remoly is administered ance in the day, at bedtime. As an illustration of the prompt action of the alkaloof an administered. I may quote the case of a little girl, two years and ben mouths old, who had suffered from chronic urticaria for two years. The rish had varied in intensity from time to time, but had never disappeared outlively; and the child was said to be in a state of constant suffering from the distressing itching to which it give rise. A few powders, each containing there grains of quinties, were undered; one to be taken every night on going to bed. After two or three powders the rash completely disappeared, and two years afterwards I board that it had never returned.

ROSEOLA.

Roscola, or the rose mak, is a form of crytherm which is often seen in early life, and although a very triffing complaint, is yet on account of the

resemblance if bears to measles of some chinical importance.

The rash is especially common in the spring and the autumn, and this partiality to certain seasons of the year has given rise to the names of rescoin seaters and rescola autumnatis. Like the other forms of crythems the complaint is not contagious. It is common for one-child of a family to be the only our attacked, although nating freely with the others, and

exposed to exactly the same conditions. The rush may occur several times in the same individual, for it is in no way self-protective; indeed, the contrary some to be the case, and its tendency rather is to recur.

The causes of the complaint appear to be digestive derangement and slight chills. The symptom occasionally complicates other diseases. Thus, a say come on in the pre-emptine stage of small-pea, and is upt to occur

ga varcinated children, and in rheumatic subjects.

Symptons. The appearance of the rash is usually preceded by slight signs of disturbance. The child's eyes look heavy, his appetite is poor, his temper is furred, and sensitines he vomits. In rurer cases the bowels are slightly loose. It is said that at this time there may be slight elevation of temperature. The pre-cruptive stage lasts usually for a few hours. The rash then appears as bright case apota, which come out very rapidly, and soon cover large surfaces of the body. The size of these spots is very much that of the cruption of measles; and sensetimes, as in that disease, they assume a croscentic arrangement, so that except for the much brighter colour of the rash the general appearance of the child is that of one suffering from measles. There are, however, no catarrhal symptoms of any moment, the throat is seldom reddened, and there is no cough.

The rash lasts a few hours or a day or two, and then subsides. Usually, if it has appeared quickly, it fales with some subdenness; but if it has come out slowly, spreading gradually over the body, it disappears in an equally leisurely nonner. Sometimes the couption appears in the form of small circular spots which remain isolated or joined irregularly; and in some cases the rash boars a close resemblance to that form of scarlatins in which the spots remain discrete, so as to be separated by skin of healthy colouring. During the exceptive stage the temperature rarely rises above the

normal level

A little girl of eight years old, the only daughter of very careful parents, was said to have been perfectly well without any sign of entarth or other disturbance until noon on March 18th. It was then noticed that her eyes were heavy, but she ate her dinner as usual. In patting the child to bed in the evening it was found that she had some red spots on the shoulder. During the night she succeed once or twice. On the morning of the following that the face and body were covered with a crescentic rash which tore a close rescandance to the cruption of measles. It differed only in colour, for the tint was peculiarly bright and roay. On the checks the rash was confinent, and it was rather popular on the juve. There was very slight injection of the conjunctive, but the fonces were not reddened. The child did not cough or smalle, and there was no rhundless or other abnormal sign about the lange. A painless, morable gland, the size of a fillert, was felt just below the occuput. The bowels were not relaxed. There was no special thirst or loss of appetite. The temperature at 2 s.m. was 20°. Palse, 100.

The next day (March 20th) the rish was fading fast. The temperature

was normal. No catarrhal symptoms,

Sometimes the reactions couprion comes and goes with great rapidity, lasting only a few lours. In such cases it usually readily recurs. The spots sometimes group themselves in rings. This arrangement is held to

constitute a special variety-re-role generate,

Diagrams.—Roscola, when it assumes the erescentic form, is stictinguished from mendes by the absence of lengthened prodromata; by the release of the rash which, instead of being yellowish-red or dall red, is of a length rose tint; by the normal or only moderately clevated temperature.

and by the absence of cough and coryza. These points are well illustrated by the case above narrated. It is more difficult to distinguish the conplaint from rotheln; for in both disorders the cruption appears early with only slight profromata, and the temperature soon becomes normal. In rotheln, however, there is a sensible elevation of the temperature during the first day or two; the soreness of throat, which is almost absent in roseola, is a warked feature, and the cruption is duil red with rose of the bright rosy tint of the roseolous rash. Still, in spite of these differences the resemblance between the two complaints is sufficiently close to make it probable that possola is often called rotheln, and that the patient is supposed to have had an attack of "German messies."

The diagnosis between rescola and scarlatina is given elsewhere (see

page 421.

Treatment.—The treatment required for rescola consists in keeping the child quiet, and attending to any digestive derangement which may be present. Usually no medicine is necessary.

CHAPTER III.

DOZEMA.

Ecreus, one of the commonset of skin diseases in early life, and often one of the most obstinate, is characterised by an eruption of popules, vesicles, and sometimes of postules. The rash forms more or less extensive patches of redness. These secrete a thin gammy fluid which dries into scales and crusts. The disease is accompanied by much switching, and in severe cases the constant itching interferes with sleep and keeps the unfortunate patient in a state of constant restlessums and distress. It may attack children of all ages, and in infants especially become infantile) is soft to assume a sub-acute form which persists for months or even years with varying in-

tensity, and is very difficult of cure.

Consumon -Industs attacked by the disease are usually of stordy build without other eign of ill-health. In such cases it is by no means easy to discover any cause to which the conglisint can be attributed. Often one rhild of the family is alone affected, although the conditions of life appear. to be the same in the case of the patient as in that of his more fortunate brothers and sisters. Sometimes, if the child is at the breast, we can detect by careful inquiry the existence of dyspepsis in the mother, or of some error in diet which affects the quality of her milk. In hand-fed babies excess of starchy food may seem to be inducing an acid state of the alimenlary canal which may promote and maintain the cutaneous cruption. In some cases a goody or rheumatic family tendency may exist, and it appears extremely probable that this constitutional disposition is often to blame for the occurrence of ecterns in young children. It has certainly seemed to use that infantile excess is more common in such families than in others where no such proclicity exists. Again, we not unfrequently first, especially in scrofulous subjects, that the exampleus rish appears as a sequel of up of the scale specific fevers. Thus, it muy come on after messles, scarlet fever, or small-pex. The disease is, however, often met with in cases where no error in management can be discovered, where the animal formtions appear to be satisfactorily performed, where the child has not lately suffered from fever, and where no family tendency to good or riseumatism can be found to prevail.

Dentition is often supposed to be an exciting cause of the cutaneous affection, and so doubt a limited amount of eccens is often present in terthing infants. But it is common for the rash to appear at the fifth or sixth month, before teething troubles have begun; and the cruption not unfrequently lasts long after the whole crup of milk-toeth has appeared

through the gum.

In older children irritants to the skin, such as profuse sevening, etc., may produce the discuss; and at this age excess of fruit and other errors of diet may lead to the discreter. Serofulous children are very liable to the

Symptoms -- Ecroma usually begins as a bright red patch, on which a crop of papules very quickly appears, or the surface becomes covered with a number of minute, clear vesicles. There is great itching of the inflamed portion of skin; and the friction to which the part is subjected very supidly destroys the normal appearance of the mak. The pupales are torn by the nails, and the vesicles also become ruptured and usude a thin flmit which dries into scales. The parts affected are usually those where the skin is delicate and noft, each as the folds of the joints, the genitals, the perinature, the lips and cheeks, the inner sides of the thighs, and the backs of the legs, especially just above the arkles. It is, however, also common on the scalp; but here the disease usually assumes the pustular form, and thick scales are seen, under which there is a purabent fluid. In some children this variety is often accompanied by pedicult.

The constitutional disturbance is soldon great; there is rarely any noticeable rise of temperature, and the appetite is little impaired. In very scule cases, however, the burning sensation to which the inflammation gives rise may produce great distress. The child's sleep is disturbed. and all his functions may be deranged by worry and want of rest.

Several varieties of the disease are common in children. Those which will be described are: -- Eczema simplex, eczema ruhrum, eczema capitis,

eccessa tursi, and eccessa infantile.

Excess simples is the commonest form of the disease. It attacks childrea belond the ears, at the orifices of the nostrils, on the cheeks, and indeed on any part of the body. The rash occurs in patches of reduces on which papules or vesicles very quickly appear, and later pustales are generally seen. In the latter case the disease is often called screwe imperiormore. The red rash crudes a gummy fluid, which dries into thin reddish or brownish crusts. When these are removed, the surface is seen to be red and moist, or covered with fine scales. On hairr parts, a few postules are almost always seen as well. The postules are larger than the vesicles, and are situated at the orifices of the hair follicles; for the hair can be seen to pass through their centre. They soon burst, and discharge their contents. The fluid dries and forms thick crusts, which are sometimes turned up at the edges. There is some infiltration of the skin at the afferted just, and a good deal of itching and heat is complained of his the patient. The postular form is most common in servicious subjects, but may occur in others who suffer from no such constitutional predisposition.

In carses redress the inflammation and reduces are very great, and the surface of the patch is seen to be studded with deeper red points. which correspond to the crifices of the cutaneous follicles. The secretion forms thick scabs under which small exceptations are seen-the comequence of rupture of the vesicles. This variety is especially frequent at the folds of the joints, such as the groins, the arm-pits, and at the backs

of the knees. It causes much itching.

Execut capatis occurs in the protular (eczenia impetiginodes) or the scaly form. The expolation to which the cruption gives rise becomes entangled in the bairs and mate them together, so that it can with difficulty be removed. In neglected cases it is not meanmon to find the head covered with a kind of cap or large scab, composed of the hair matted into a mass by dried exodution. This feels soft and hoggy to the touck. from the quantity of contained purulent fluid which wells up through any opening in the scab. The odeur is most offensive, and usually in such cases pediculi abound. Superficial ulterations and small subcutaneous abscesses may sometimes be seen on the scalp when the crusts are reproved; and the glands of the neck and those at the back of the head often become inflamed and swollen. In very chronic cases the hairs may fall out, but flay grow again when the disense is at an end.

In infants the scaly form is the more common. The scalp may be seen to be covered with scabe, but exudes only a limited amount of secretion.

A variety of eczema capitis has been described as assertigo costoquen, being supposed by some authorities to be conveyed from one child to another by actual contact. There is no doubt that we often find several children of the same family suffering from impetigo of the scalp at the sime time, but the contagious nature of the graption is not universally recognised. It is, indeed, denied by many good observers. Dr. Tubury Fox, who believed in the communicability of this form of the discuse, states that contagious impetigo always begun as little watery heads.

In screen farm the disease affects the edges of the cyclids. This form is common in scrofulous children and may be combined with strumous ophtinimis and conjunctivitie. A number of pustness appear at the orifices of the hair-follistes. These burst quickly and form scabs. The scuption is attended with considerable itching and some weeling of the elges of the lids. The margins of the cyclids are scaly from small crusts which cling round the shafts of the bairs as these issue from the follicles. The hairs are often glood together by the secretion, and at night-time the edges of the cyclids are also very apt to stick together. When the scales are removed small ofcors are often to be detected on the skin beneath. Erzems tand is a very chronic complaint. It is often accompanied by much weakness of the eyes and lackrymation. If allowed to go on it eventually causes obliteration of the Meibennian glands and Jaig-follicles, and the eveloales are upt to fall out, or if they remain to grow irregularly

and in very inconvenient directions.

Expan infeatile is a very obstinate form of the disease. It usually appears before the end of the sixth mouth, and attacks intants who in other properts seem to be in perfect health. It begins generally on the cheeks and spreads thence to the neck, chest, arms, and body generally. At first it is not uncommonly complicated by wheals of urticarts. In any case the discuse is accompanied by intense stehing which evidently causes the utmost distress to the child, and often it is necessary to seeme his hands, so as to prevent his increasing the irritation by constant friction. Even when this is done he will rub his cheeks against the pillow of his cot until the skin is completely excoriated, and often wours the bair from the back of his head by constant movement of the occiput upon the pillow to relieve the irritation. The parts affected are intensely red, and are rough and scaly from drying of the secretion poured out by the ruptured vesicles, and protules. In severe cases the child hardly sleeps at all on account of the constant itching. The course of the disease is soldon uniform; usually it undergoes curious afternations of improvement and relapse. An attack of agute gastrie cutarris will often curv the skin affection completely for a time, but the cruption returns as badly as ever when the gustaic desaugement is at on end.

A sturdy little boy, aged five mouths, had suffered for a mouth from an attack of acute errenn infantile, which occupied the whole of the head, face, sides of the neck, and the greater part of the chest. The irritation was extreme. The child had ween the whole of the lair from the back of his head by friction of the occiput against the pillow. This indust had an attack of zonte gastrie establic with violent and repeated vorniting. The eccents at once began to fade, and in the course of three days had almost

completely disappeared. Directly, however, the continuous had ceased and the appetite had begun to return, the cutaneous emption reappeared, and in a day or two was as bad as before.

This form of ecosmic often continues for years, and may persist throughout the whole of childhood. In such cases, however, the cruption generally clears away completely from the band and face, but remains as a patchy mah, more or less extensively diffused over the body and limbs.

The diagnostic characters of the eruption are :—A red, inflaned, and rather infiltrated surface which gives rise to extreme itching, and presents many scales or crusts, and a more or less punctated appearance, i.e. the reddened skin has a dotted look from small points of a deeper red covering the surface of the patch. It is very important with regard to treatment to exclude scatters, for this parasite eruption has often the general appearance of scatters; for this parasite eruption has often the general appearance of scatters; indeed, a true second is often present on the body excited by the irritation of the scarm. In all doubtful cases the characteristic furrow produced by the itch insect should be diligently searched for, for this, if discovered, is pathognomenic. It must be remembered that in young children scables rarely affects the hands and wrists, but is more commonly found about the buttocks, the belly, the feet, and the ankles. Excloparatous pushules scatted upon the soles of the feet are very strong evidence in favour of scabies.

Sometimes patches of provious, especially if the silvery scales have been removed, been a great resemblance to severa in the dry or chronic form. In such cases we should carefully cumine all the patches discoverable about the body. In occean the patches are brighter in colour and less well defined at the edges, the scales are thin and loosely ultriched, itching is a marked feature, and the parts affected are usually the flexures of the joints and other regions where the skin is delicate and disposed to be most. In provious the patches are well defined and paler in colour, the scales are thicker and more adherent, and itching is of moderate intensity. Moreover, programs attacks by preference the outer parts of the limbs

where the skin is comporatively thick and course.

Synthese cruptions in the infant are readily distinguished from scorna by their more coppery tint, the absence of itching to any natable degree, and the presence of hourseness, smalling, and other usil-marked signs of

the expliditic cachesia.

Ecomm capitis can scarcely be confounded with these tonsents or forms by any coreful observer. There are no broken or brittle bairs, such as are so characteristic of the former disease; and the bright yellow cup-shaped crusts of favus have no resemblance to the scales of inspetige of the scalp. It must be remembered, however, that a real ecomo equits may occur as a complication in a late stage of times tonsumes, but in such a case, when the excent is curred, the broken lairs of the parasitic disease can be discovered on excellal examination.

I have known sente expens in the early stage to assume a cressential elightly papellar form, which has been mistaken for member; but the absence of pyresis and of cough or lackeymation will serve in such a case to

exclude the exanthem;

Frontment.—In cases of second we must not confine ourselves to local applications to the inflamed surface. Often the general health of the child will also require attention. Eczematous couptions are common in children of scrolulous constitution or debilitated frame. In such patients the local remotion must be aided by general tonic treatment, if any permuncut

benefit is to be obtained. In scrofulous children the general treatment recommended for that cachestic state should be adopted, and if the child is thin and space, cod-liver oil will be found of service. Iron-wine is also

a valuable renedy.

In obstinate cases are nic may be usefully combined with the iron, and as children bear arsenic well the drug can usually be given in the same does as are found beneficial in the adult. There is, however, no advantage in cases of arsenic in pushing the dose to the utmost limits of tolerstion. It is soldon necessary to exceed five drops of Fowler's solution

three times a day.

Hang tendency to scidity and flatalence is noticed, the alkaliss are sometimes of service, and the quantity of fermentable matter allowed in the det should be restricted. Too much importance, however, ared not be attached to the subject of diet in the treatment of scasma. If a case is obstinate and resists ordinary remedies, I have not found the prohibition of screets and fruit of much value in promoting a cure. Other observers, however, seem to have nest with more success. In cases of flatby (not plethorie) children, Mr. B. Squire advocates an almost total deprivation of the fat-forming elements of food. He allows mail diluted with twice its bulk of water; dry toust, or dry biscuits; lean beef or matter with all the fat carefully removed; white fish broiled; green vegetables (but not potatoes, turnips, carrots, or other vegetable rosts), and cooked fruit on-swetched. Mr. Squire states that great improvement is seen in these cases within ten days of beginning this diet.

In all cases the digestive organs should be attended to, and any derangement remedied as quickly as possible. Constitution sunst be relieved, looseness of the borests arrested, and it should be our care to see

that the minud functions generally are in good order.

In cases of sente eccess tonic treatment is not always the best smited to cause the disappearance of the eruption. The discuss sometimes attacks sturdy, florid children, with a good colour and plethoric habit. These cases should be treated with a mercurial purge, followed by saline livatives to keep up a gentle action upon the bornels for several days. The child should take no ment, but should be put upon mile, broth, light pushlings, and broad-and-batter. Again, in cases where there is an evident burkency to rheumatism, or a strong goaty element in the family history, guidacum often has a very marked influence in curing the discuse. The simple tincture is the best preparation; it should be given in desce of twenty minims three times a day (to a child of ten years old).

The local treatment is of great importance in the treatment of eczems.

When the eruption is very acute, stimulating continents should not be used,
but the part should be kept moist with a simple water-dressing, or be
bothed frequently with bran-water made by pouring boiling water upon
bran and allowing it to cool. Dr. R. Liveing recommends the application to the affected surface of a pureber composed of three drachus each
of oxide of zinc and starch, and thirty grains of camphor. Over this is to

be placed a warm inseed-nest positive.

In a later stage alkaline warm baths are useful. Dr. Backley reconmends that for this purpose the customates of seds and possis and the bibomic of sods be used; two to four tempoonfuls of each to the gallon of water. To these two to four tempoonfuls of dry starch are abled. This both should be used without way, the child being merely scaked and buthed in the medicated water. After ten minutes or so he is removed, draul without friction, and then well dusted over the body with lyropodistription of acute expense, as it is said to injure the process of repair. Dr. Buckley only allow it when the accumulation of exuded matter presents the obtainents from

reaching the disease! surface.

A meful form of both is made by medicating the water with Wright's liq carbonic defurgers in the proportion of two drachms to the gallen. This can be given at first every night for half an hour; afterwards on alternate nights. Local patches of occurs are often benefited and in many cases quackly cured by keeping the part constantly moist with a lotion composed of two drachms of the liq, carbonis deturgers to ten cancer of water. To be effected, however, the moistened rags in contact with the affected surface should never be allowed to get day.

Zine and lead are two of the most valued applications for regenerous patches. In the moist variety a salve composed of exide of rine and the solution of the subacetate of lead—a drackin of each to the owner of vaselins—is very secfed. In the dry, scaly form of the rash this contract is usele more efficacions by the addition of twenty to thirty grains of the amounta-chloride of moreoury and a drackin of the liq. carbons deturgens. If stelling he very distressing, the following application, taken from the

pharmacogusta of University College Hospital, is of great service ;-

B.	Calsurine (zinci carls.)	gr. xl.
	Zinci oxidi	gr. xxx
	Glycerini	II ax.
	Aquan rosend.	73
3E	Sec To be prouted with a brush on the affected	part.

In covers copies the crests must be first exceptly removed. This is best done by covering them at night with a thick layer of hard and placing over this a large imseed-meal positics. In the morning the softened crusts can be picked off with forceps or bathed away with name water. When completely cleaned the scalp must be succisted with annuous-chlorade of mercury ointment diluted with an equal proportion of land; to we may use the salve composed of coale of zmc and subarstate of lead already referred to. Children who have this form of impeliginous comma in a severe degree are usually of strumous constitution and require tonic treatment. In obstinute cases of examin of the scalp the discuss can often be cured by tarry applications. Half an ounce of common tar, oil of cade, or oil of leach (of a ruse) may be added to two sances of glycerine of starris. This can be painted over the bend twice a day. In very chromo cases one thorough application of undiluted liquid tar will sometimes produce a complete care of the discuss.

Extens of the controls is usually cured very quickly. The crusts much be first removed from the nestrile by softening them with an oiled plug and afterwards bothing with warm water. Degenatum hydrargyri amments-chloridi can then be applied freely to the interior of the nostril with

a folded mocorl of linen ray or lint.

In occase serio it is often necessary to pull out the cycloshes, and in obstinate cases the operation is almost always necessary. The scales must be carefully removed with fine foresps or the head of a large pm, and the edges of the lide be afterwards smeared with any of the ominments which have been recommended. A mild mercurial salve, perhaps, answers the best.

Ecrees infinite is often a very obstinate complaint, and from the dis-

trees it occasions to the infant and through him to his mother or name. whose sleep is necessarily broken by the wakefulness of her charge, is one upon which it is important to make some immediate impression. When the disease is very acute and the skin red and intensely irritable, a rapid improvement is produced by large doses of quinine. I was led to employ the remody in these cases from noticing its striking influence upon circuit urticaria in young children. In orzena a dose of two grams given at bedtime to a child of six or eight months old, and repeated avery second night reduces, in a remarkable manner, the general reduces, soother the irritation, and consequently greatly relieves the child's distress. He begins to sleep better at night, and in the daytime is less irritable and fractious. Perchloride of moreury, given internally in small doses, is also a valuable senedy. A child of wight mouths old may take ten or fifteen drops of the solution (P. B.) three times a day, and the emption often seems to improve greatly under its use. Thirty or forty drops of the infusion of rinburb with a few grains of biourbonsts of soda, given regularly two or three times a day, will often also be followed by considerable benefit.

As in older children, the simple tincture of guaintum is a remoty which sometimes produces very rapid and decided improvement. I have seen the flery reduces of the general surface fade, and the itching almost entirely couse under a week's use of this remody given in doses of ten minims three times a day. When it succeeds, guaincous seems to take all the sentences out of the complaint, and reduces the coupling to a common resicule pushular med, which yields readily to ordinary applications.

The sikeline bath recommended by Dr. Buckley, and the bath medicated with the liq curionis deturgens (see page 784), are both very useful. They, the latter especially, have great influence in relieving the itching, and the calamine and sine application already referred to may be used with the same object. Too frequent washing of the infant is but in these cases, and the mother should be cantioned against disturbing the treatment by the too energetic use of wasp and water.

Vaccination of the child is said in some obstinate cases to produce a complete care of the discuss, and many observers have borne testimony to the occasional value of this method of treatment. In successful cases the scannatous rash clears away completely in from one to four weeks after

the operation.

A method of treatment by covering the affected surface with some inperusuable material, such as caoutchouse chill, so as completely to exclude the air, has been found useful in many cases. According to E. Bessener this plan is especially applicable to cases of ergons of the scalp where there is much secretion. The india-rubber sheeting must be adapted accurately to the head, so as to fit like a skull-rap, and must be kept scrupolously clean, being regularly removed for washing and drying. By this recum speedy improvement is said to be effected even in obstinate cases, so that the eruption will quickly yield to the ordinary cintments.

CHAPTER IV.

MOLLUSCUM CONTAGROSUM.

Mearrsers contagiosom is a disease more common in childhood than in after-life. It is often seen in London children, especially amongst the poor, but appears to be less prevalent in country districts, or even in other large towns in England. The contagious nature of the disease is now well established. It may be communicated by one child to another, or by a sucking infant to its mother's breast, and Dr. R. Liveing states that be has seen none staldren of the sums school all affected with coolingum at the same time. In addition to being contagions the disease may also arise

spontaneously,

Morbid Assrony - The exact seat of mollocome contagiorem is still a matter of debate. Many observers hold the view that the little tumours have their sest in the selections glands of the skin. This was long ago denied by Verchow, and after this authority others have supported the regimen that the bodies consist of a morbid growth of the cells of the cutie. Sections of the turnours show that some are simple cost-like bodies, others are lobulated and surrounded by a fibrous expende from which fine septa pass between the lobules. The subject has been lately investigated enew by Dr. Sangster, who correlades, as a result of his observations, that mol-Inserms contagiosum is a disease of the epidermis in which three layers take part. The external portion is formed by the cells of the rete, for on careful vertical section of the earliest specimens procurable the rote is seen in direct continuity with the lobular expansions of the new growth. The cells probably undergo simple hyperplasis, and those placed at the border are alongsted and sertical. Next to these is a granular layer composed of p degenal cells more or less infiltrated with fat-globules. In the centre are coundish bodies, translacent and watery-looking, which are called "molliseste corpendes." All these are arranged in masses which lie in the mostes of a granular reticulous. The tumour is covered by the more superficial layer of the corinn, and at its base is a network of fine ves-Arres.

Symptoms.—Mollinsrum contagionum appears in the form of small, white, hard, translucent swellings which gradually increase in size until they reach the dimensions of a pea, or even a nut. Their form is circular, with a flattened top, and at this part is seen a minute depression, which is supposed by those who recognise the scheecess origin of the tumours to be the mouth of the scheecess cost. The smaller growths are usually seemle; the larger are pedunculated. A milky-looking thickish juice can be squeezed out of the central depression, especially if a puncture has been previously made with the point of a larger.

There is no itelating or uncaniness connected with the growths in their realizance state, but sometimes one will inflame and be converted into a postule. When left alone the tumours gradually dry up, leaving some thickening at their site. The older ones are usually succeeded by a fresh

Their seat is usually the slaw of the face, the evolule, or the neck, but they may be also seen on the cheet, abdomen, genitals, and inner part of

the thighs.

Discussion. These tuniours must not be confounded with the moliusrate fibroum, which is altogether a different disease. These are small todies of solid, somewhat gulatinous structure, and consist, according to Rokitansky, of a protrusion of the corium, "which is pushed forwards by accumulation of young, politinous connective tissue in one of its despest medes." They have no umbilication like the contagious monuscum, and no milky juice can be obtained from them by presente.

Presturest,-The smaller tomours must be touched with mitric acid or other strong caustic. The larger must be similed with a lancet and the

contents squeezed out. A little curstic can be afterwards applied.

CHAPTER V.

THE PARASITIC DISEASES.

Tue excities of parasitic disease of the skin which will be described are :— Scalice, due to the irritation of the acarus scabin or the itel-insect; and certain regetable parasitic fungi, via, times tonsurans and times favous.

SCABIES.

The symptoms to which the acurus scalaisi gives rise are due to the irritation produced by the insect as it burrows in the skin. The female scarus works its way into the epidermis and forms a narrow funnel called "cuniculus." The intense itching thus occasioned forces the child to relieve himself by scratching; and the consequences are seen in the wheals, papales, vesicles, and even pastules which is a typical case are mixed up together in

a manner which is very characteristic of the complaint.

The currentles or furrow appears as a whitish curved line, which when newly formed may be easily overlooked; and in shaldren especially in infants, who are well tended and frequently unshed, may escape notice altopetter unless narrowly searched for. In hospital patients they are readily discovered as they become darker and more distinct from small specks of dist. The furrow is about the eighth of an inch in length, but may be longer, and to the naked eye closely resembles the semich of a pin. Viewed with a lens it has a dotted look, and sometimes at one extremely a small what object can be detected, which is the female insect. With cure this may be extracted with the point of a pin.

In infants the forcews are rarely seen on the wrist and between the forgoes as they are in obler children and in the adult. In these young subjects they must be searched for on the abdomen, the waist, the buttocks, round the ankies, and on the soles of the feet; but in liables in well-to-do families, where cleanliness is properly attended to, the sign may shade the closest inspection. In young children after the age of infancy they are also usually scated on the buttocks, feet, and ankles. It is only in children of five or six years and upwards that they are often to be detected between

the fingers. The scalp and fare are rarely attacked.

The itching to which the presence of this parasite gives rise is of the most distressing character, and at right may be extreme. The child will be seen to dig his mails into the skin in his efforts to obtain relief. As a consequence we find reddened linear some from small furrows made by the mais; and as another result of the violent scratching, can usually discover small papales, often excertated and tipped with a minute creat of diried blood, little vesicles, and even large deep-scatch postules. These latter are often seen on the soles of the feet. In very delicate subjects a real excess may be set up either by the ignitation of the nails or of the applica-

tions used for the destruction of the parasite; and large wheals of urticans are far from uncommon.

Disprovis.—The simultaneous appearance of a variety of eruptions on the body of an infant is a very suspicious feature; and if with a lens we can succeed in discovering the characteristic furrow, no doubt can remain as to the nature of the complaint. In the case of an infant, the hands of the mother or nurse will be always found to be affected. Therefore in every esse of doubt a careful inspection should be made of the hands of the attendent. In searching for the furrow in young children attention should be always especially directed to the buttocks, abdomen, and the soles of the feet. In older children the furrows may be seen between the fingers and on the wrist as in the adult; and as at this age, especially in buys, cleanliness of these parts is often neglected, the emiculas seldem falls to be discovered.

Prentason: - Scribies can only be cured by local treatment which kills the purmitie insect, and the favourite and most efficacious remody is the application of sulphur controent to the skin. It must be remembered that in shale free, in infants especially, the skin is delicate and sensitive to irritarits. Therefore, while care is taken to make effectual use of the salve so that the acarus may be destroyed, we should avoid maintaining the entaneous irritation by two prolonged or too mulous application of the outment. At nighttime the child should be first thoroughly washed over the whole body with a strong scop, and he then well bothed with warm water, so as completely to soften the skin and lay open such furrows as may be present by destroying their roofs. He should them be well dried, and an continent made of half a drackin of precipitated sulphur to the owner of had must be rubbed into the skin of the whole body except, of course, the head. It is important that the solve be rubbed into the skin and not merely emeated over the surface. In the morning the skin should be again thereogisty washed. This one application will cure the disease in most children. It is advisable, horsesor, to rub a little of the contment into the parts which seem to have been especially affected for two or three nights longer. We should then joune to watch the effect of the treatment. Itching often continues for some time after the parasites have been destroyed, as a consequence of the various forms of eruption set up by the scarms. In cases where it is doubtful whether the disease be cared or not, Dr. R. Liveing recommends an ontment made with the halasm of Peru (3 ii, to the owner of hard).

If it to thought desirable to diaguise the sulphur in the ordinary cintinent, this can be done by a drop of creasots or oil of bergamot. Dr. Liveing prefers the precipitated to the sublimed sulphur, as being in a

firer powder, and less britating to the skin-

Instead of sulphur, an contracut may be used of liquid styrax (one just) and land (two parts), or of possibired staveners and hard (7 is, to the ouncer; but these are distinctly inferior to the sulphur. Ointments containing carbolic acid have also been made use of. It is advisable to well scald the underslothing of the patient, and after recovery to bake the cuter gurments, so as to insure the destruction of stray insects.

TINEA TONSURANS.

Tipes tonsurans is peculiarly a disease of early life. This affection is practically confined to children, and in the form of riegeorus of the scale is one of the most obstinate and contagious of complaints. The discuss is due to the presence of a fungus—the tricophyton tonsums—which grows

in the internal root-sheath within the follicle, and the fine raycellum filements penetrate into the hair between the fibres. These fibraucuts are composed of cylindrical, tube-like bodies united in chains. At the surface of the hair the spores of the tricophyton are collected into little globular masses called coning, and in very old-standing cases these are also seen to fill almost the whole thickness of the hair. As a consequence of the presence of the parasitic fungus the lasirs are greatly thickered; their colour changes to a shall gray tint, and their brittleness causes them to break off short at a point immediately above the follicle out of which they issue. The fungus is seen not only in the substrace of the lair, and conting their shafts, but also as a more or less continuous layer on the surface of the sculp. Through this covering the free ends of the stabbly hum can be seen as black points. Later, as the parasitiv matter accommistes, the stimps of heir become completely enshouthed in the mycelium conting so that their elimition is only shown by a projection of the surface of the layer. Barin has compared the appearance thus produced to that of a surface covered with hour-frost.

In very old standing cases, acute inflammation may be set up in the hair-follicles. This may lead to complete destruction of the lairs, so that

the part of the scalp affected remains partially bald.

Symplosis,—On the sculp ringworm is seen in more or less corollar patches. These in the curliest stage are slightly raised above the surface, and cause considerable itching. The hairs are not broken off, and have almost a natural appearance; but they will be found to be very brittle, so that they generally break if an attempt is made to extract them. As the disease proceeds the patches become distinctly circumscribed, and of a pule faws or slate-gray colour. Their surface is covered by a thick scurf formed of epithelial scales mixed with the funged growth. This scurf gives a frosted appearance to the patch, and adheres to the shafts of the bases as these suscept from the follicles. The patches are not entirely covered by the about bristly hairs, for in many places three base falles out, leaving the surface bare. Those which remain are short and twisted. They look as if out off about a line or two above the surface of the scalp; and are thackened, dull in colour, and sensetines loose in their mekets. If the scarf has accumulated to a great thickness, the ends of the hairs may be completely concealed from view.

The number of patches existing at the same time suries. Sometimes they are very numerous; indeed, in certain cases, the disease takes on a diffuse form, in which little groups of scale patches with briefly stumps of

hairs are seen scattered over the surface of the head.

When the times is scated on the skin of the body it is called form or counts. This is also a very connect form of the disease, and is generally found on the face and neck, although it may occupy any part of the body or limbs. It is seen as a slightly elected, roundish patch, of a light red colour, and of the size of a small pea. This begins to extend at its edges, and as the circumference spreads, the central part fades and becomes less prominent, so that the circular patch is converted into a ring which continues to calarge. With a ieus the surface affected is seen to be covered with brainly scales: and fine vesicles are noticed at the margins. If two adjacent rings happen to teach one another, morbid action at the point of contact undergoes no further extension. In this way curiously arregular shapes are often produced. In the central part of the ring the skin, although of comparatively buildly appearance, has yet a yellowish tint, and a roughencel look from usual scales. These spots cause a great deal

of irritation, and the fangus is no doubt eften conveyed by the child's

nails from the body to the scalp.

The general health of children affected with ringworm is often unsatisfactory, and the complaint seems to attack, by perference, weakly and accordions subjects. The latter, especially, have seemed to me to be pecu-

inrly prope to the disorder.

Disputes.—In cases of ringworm of the scalp the chief diagnostic point is the appearance of lattle rounded, scale patches, on the surface of which the lattre are thick, dull in colour, and broken short off just above the follicles. If our of these short lates be removed with a pair of fine ferceps, and placed with a drop of liq. potasses under the microscope, the characteristic masses of species and mycelium filaments will be readily distinguished. If the hair-stump be allowed to soak in the drop of potash solution for an hour or two before inspection, the parasitic fungus will be

more readily detected.

At an earlier period than this the complaint is less easy to recognise. It is, however, of great importance to detect the affection in its early stage. It often lappens that when one child of a family suffers from timen tonernass one of his brothers or sisters is toought for examination, because he has been noticed to have some irritation of the scalp. If, in such a case, ringsorm be present, we shall find one or two small rounded patches, roughened with fine scales; and shall notice that although no stumpy hairs are to be seen, and the hairs have a natural appearance, they are just unusually brittle, so that they levek off when no attempt is made to pull them out with the forceps. From the first, therefore, in ringworm the lairs are brittle; and at an early period of the disease the circular shape of the patch on the scalp, and the brittleness of the hairs growing upon it, are the two points of chief diagnostic value.

An important question, and one upon which our opinion is often required, is that of whether in a given case the child is well. To settle this point correctly requires a very careful examination of the scalp. If any diseased stumps of hairs remain the complaint is not entirely emilicated. The child is therefore still a source of infection to others, and is himself liable to a relapse. Even a bald patch from which the hairs have been carefully extracted is not to be considered well. Often after an interval the stumps will shoot up again, the diseased balb of the hair having been left in the folloce. It is not until the part lately the seat of the ringworm is seen to be covered with a fine downly growth, in which no single stump of the old crop can be detected, that it can be said, confidently, to be free

from discuss.

In some cases a difficulty is occasioned by the presence of senoms which has incaded the scalp towards the end of an attack of ringworm. When this happens the evidences of ringworm may be spite concealed by the complication. We must therefore withheld a positive opinion until

the eczenii has been cured,

Their circulate is distinguished by its annular shape, and in cases of could by examination under the microscope of a scraping from the skin of the patch. The spot selected for this purpose should be a part of the ring towards the inner margin. This should be gently scraped, and the scaly matter removed is to be placed under the microscope, with a drop of his potnesse. The jointed mycelium will then be recognised, and a few sporm will assembly be seen.

Prestacat -- In cases of ringworm of the scale, the measures to be adopted, and the probable efficacy of the treatment, vary considerably, ac-

conding as the discuse is of recent or remote origin. Recent cases can usually be quickly cured, but chronic cases resist treatment with singular

obstimacy.

Treatment will also vary according to the upe of the patient. Ringworm can only be rured by local applications, and the measures to be adopted consist of the use of two classes of remedies, viz. those which imitate the skin and destroy the fungus, by exciting inflammation in the follicle, and those which kill the parasite without producing inflammation. Of these two classes the first is not suitable to very young patients. Blisters and violent constics are dangerous remedies in the case of infants; and on account of the pain they exerts are not to be used carclessly even on older subjects.

In against and young children it will be usually sufficient to wash the head thoroughly such scap and not water every night, and after careful drying to paint the patch with fineture of indine. After a few days the application can be changed to the ungreatum hydrargyri ammonto chloridi (P. II.) diluted with an equal proportion of laid; are equal parts of this salve and the ungreature sulphures may be made use of. Either of these must be well robbed into the affected parts of the scalp. Another useful application is the glacerine of carbelle acid diluted with a third part of glycerine. This may be pointed on the patch with a stiff brush, or rubbed

in with a piece of sponge tied to the end of a pencil.

In older cholden the treatment varies according to the aruteness or chronicity of the disease. In either case it is important to keep the hair cut closely to the scalp in the neighbourhood of the patches. The disease is most infectious in its earlier stages, and becomes much less liable to be communicated when undergoing treatment. Of course care will be taken that towels, pillows, etc., used for the patient are not shared by the other children. As an additional presention Dr. R. Liveing recommends that the carbolised glycorine, pure or diluted with an equal proportion of gly-

cerine, should be well rubbed into the scalp every morning.

In a secont case, if the discused patch be of small extent, it should be blistered by the liq. epispasticus. Afterwards, when the sore has bealed, the cleate of mercury continent (first per cent.) should be well rubbed into the patch every night. It is useful to vary the application every week or ten days. Therefore, in addition to the preceding, a solve composed of sulphur eintiment (half an owner) with white preceding a solve composed of sulphur eintiment (half an owner) with white preceding the (twenty grains) must be used, or the obstance 'recommended by Mr. Alder Sandh, made by abling one part each of pure carbolic acid and unguestimn hedrors gyri nitratis to four parts of the unguestimn sulphuris, may be employed. A favourite remedy in recent cases is the preparation known as "Coaler's paste," made by adding two dractims of soline to one owner of the colours less oil of tar. Mr. Morant Paker prefers to substitute cremete for the oil of tar. The application is to be painted thickly on the patch with a camella-hair brush.

If order treatment the patches become very sore, so that the rubbing in of the continents causes too great pain. Mr. Alder Smath recommends simply smearing the surface of the patch with the carlodic ointment during the day and poulticing with bread-and-water every night. These measures are often followed by a rapid cure. The penetration of the

[&]quot;In mixing this obstructions bent is to be applied. The two saless are first to be antilparated, and the strength of this application can be exceed according to the age of the child by intreasing the proportion of surbolic acid and nitrate of mescary.

remody into the bur-follicles is aided by previous removal of the hairstumps. This epilation is done with a forceps made for the purpose. Care must, however, be taken in extracting the bair, as on account of its brittleness it is very apt to break off, leaving the baib still in the follicle. It is also important to pack or wash off the due crusts of sourf which, as long as they remain, are greatly in the way of efficient treatment. If the scab is difficult to remove it should be well greated with cold cream or saturated with olive-oil, and positiced. It then becomes quite soft and

can be easily picked off. In old-strating cases the above remodite are still of service, and careful epilation should be practised. Sometimes the long duration of the disorder seems to be due to ignorance or neglect; the remedies not having been applied effectually, or cure not having been taken to remove the sourf before applying the sales. The energetic use of cleate of mercury contment (five per cent.) is recommended by Mr. Abler Smith as a useful remely even in chronic cases. After eareful washing of the board the cleate, freshly made, is well rubbed into the whole sculp with a sponge map. In the use of this application it is well to refrain from charging the mop too liberally with the remedy, lent the ointment run down the face and neck. At night, too, a linen cap abouid be worn on the head; and a this towel is often necessary, applied as a turban, to prevent arritation of the face by the pleate. Any amening of the skin absorbere than on the scalp with the sales will produce a coprous cruption of small postules and much swelling. Every night the general application is to be reported; in the morning the insurction is to be limited to the diseased putches. While this plan of treatment is being carried out the bend must be washed only once a fortnight; but scale or yellowish incrustations must be frequently removed by the forceps. If the cleate set up influmnation in the patch a speedy core is usually effected.

The bracketal effects observed as a consequence of inflammation set up in the patch has led to the employment of special irritants with the express view of producing this result. Mr. Alder Smith, who has devoted much attention to this method of treatment, states that very long-standing cases can semetimes be cured by this means. He selects a small patch and applies to it ceston-oil in moderate quantity with a small stiff runel's hair brush. After a few hours he applies a position and keeps it on the head all night. If severe inflammation has not ensued by the next day the process is repeated, and sometimes three or four applications may be needed. The object is to set up artificial "berien," i.e., to produce a smoller, bogge, freely-discharging surface from inflammatory swelling and offusion in the tissues around the follicles. When kerion is produced so more croton-oil need be applied, but the part must be frequently foramted with sum water. After a few days the stumpy hairs become loose and fall out, and when the inflaquantion has subsided a smooth, shining, slightly-raised red surface is left "atterly destitute of all hairs and stumps and practically well." Eventually, the spot becomes again covered by new

This plan of treatment is only admissible in the older children, and the application should be confined to a limited surface if the patch is a large one. While in progress the carbolic glycerite or cleate should still be applied to other parts of the scalp. By this means Mr. Abler Smith states that he has had successful results in apparently incurable cases, and has never seen any internal irritation or crysipelas set up by the use

of this powerful irritant.

bealthy hairs

In obstitute cases of ringworm of the scalp constitutional treatment is also required. Often the patients are uncose, screfulous, or ill-nonrished subjects, and cod-liver oil and toutes will be of service in improving their

general health.

Ringueses of the body (most executa) is quickly cased by the application of a strong irritant. I am in the habit of painting the ring lightly with glacial acetic and. This application causes some smarting for a short time, but parally cures the disorder of once. Sometimes a second application to parts of the ring is required after five or six days. Other applications which may be used are the strong tincture of iodine, and a solution of nitrate of other () j. to the owner).

TINEA PATOSA.

Then farous, or favoi, is much less common in England than the preceding. Like it it is a contagious disease, and is most frequently seen in strofulous or neglected and budly-fed children. It is said to be common in some countries in mice and rate, and instances have been known in which the disease has been conveyed from these animals to the children of the family.

Farms is due to the presence of a cryptogram—the selection Selections.

The mycelism and spores of this fungus may be seen without difficulty if a portion of the crust be put under the uncroscope, moistened with a drop

of liq. potnessr.

Symptoms.—Like times tonsurms, favus may occur on any part of the body, but is usually met with on the boad. In begins in small scally patches which cause much itelang. In this carly stage the discuss bears a close resemblance to the ordinary ringworm, especially as the bases growing on the discussed spot quickly loss their lastre and get dull in colour. Tacy do not, however, as in ringworm, become brittle, so that there is no

difficulty in polling them out with the forcess.

After a time small yellow crusts of about the size of a pin's head appear on the putch round the lmirs. These crusts are at first courses, but afterwards as they enlarge become cup-shaped. They are of a sulphur-yellow estone, and vary from a split pen to a mass of the dismeter of half an inch. Usually one or two hairs pass through the centre. At first the firms crusts are placed singly, but they may afterwards become confluent, so as to form irregular-shaped tunses, more or loss extensive, and without the characteristic cup-shaped depression. The smell of the land covered by the crusts is very amplement and somewhat resembles that of mice. On the removal of a faxue crust a depression is seen which is red and may be ulcerated. This, alter a few days, disappears and the surface becomes again covered by a new crop of cup-shaped crusts. When the crusts become detached and full off spontaneously the skin-is merely seen to be stained of a dark red or violet colour. As the disease goes on the hairs lose their natural tint, and grow loose in their sockets so as to be pulled out with ease. Their slafts are found on inspection to be irregular in their diameter at different points, and their mots are stropkied. They become fewer in number, and if the disease persists may disappear altogether, leaving the part con-

On the body favor, like times tonsurous, forms rings, but these always remain small, seldom exceeding half an inch in discuster, and have not the characteristics of times circinate. In other respects they hear a close resemblance to that disease. Afterwards, however, the characteristic cructs make their appearance at the edges and on the surface of the rings.

Disposits —When the disease is well developed on the scalp, the cupshaped crosts, and these sulphur-yellow colour are very characteristic. It is in the early shape before the crusts appear, and in the later shape when the crusts have lost their peculiar features, that the disease is highly to be mistaken. In the early shape the round, iteming, scaly patches closely resemble common ringworm, but a distinction is supplied by the want of bruttleness of the later in favor. In this disease the later can be pulled out of their follicles with case, while in times tonsmins, if an although be smalle to extract the later, it almost invariably snaps short off close to the scalp. In the later stage when the crusts have not their distinctive obseractor, especially if, as often happens, they have become complicated with a secondary examination cruption, the diagnosis is again less obvious, but the history of the case, and a sureful microscopic examination of the crusts, which sevends the mycelium and spores of the cryptogam, will indicate the nature of the case.

Freshwest, — The crusts must be removed by saturating them with eliseoil, and then positicing, or by constantly applying a strong sulphurous
and lotion under a cap of cited silk. When the scalp is quite denuted of
crusts and scabs the hair must be cut close to the skull, and steps can
then be taken to remove all the hairs from the diseased surface. This is a
work requiring much time, trouble, and patience; for each hair must be
carefully extracted by the forceps, taking care to pull in the direction in
which the hair is growing. When this has been done, the special remedy
must be well rubbed into the scalp. Any of the applications recommended
for times to assurant may be made use of, but one of the most effectual in
the obsate of mercury sintment (five per cent.). This must be used carefully and with precuration that the cintagent does not run over the face.

If the child be bully nourished or amount, strengthening medicines and good nourishing food will be of service in aiding his recovery.

CHAPTER VL

SCHLEREIMA.

Schema, a disease which consists in a hardening of the entanceus cellular tissue sometimes met with in young infants, is rurely observed in England, but appears to be less traceomors on the continent of Europe. The affection was first completely described by Underwood's description. Shortly atterwords Andry of Paris applied Underwood's description to a totally different lesson. This observe had frequently noticed at the Hospice des Enfants-Trouvis of Paris a condition in which the surface of the body becauses industed as a consequence of substanceurs ordens. This disorder answered in many respects to Underwood's description, so that by a not untratural confinsion Andry adopted Underwood's term for his own account of orders of the new-born infant. After his time the error, thus begun, was perpetuated by successive witers until Parrot, to whose labours the pathology of infantile disease is so much indebted, showed clearly in his work on "Athrepsie" that two very different conditions had been hitherto condomated under the same title. In the present chapter the true scierums will be first described; afterwards a short account will be given of "orders of the new-born infant."

THEE SCLERENA:

True sclewers (induration of the cutaneous cellular tissue) is confined to new-born infants. This issues is not to be confounded with the sclero-dornes which attacks older children and adults. It occurs only, according to Parrot, in feeble infants and those wasted by bad feeding and unwholesome conditions generally. According to Underwood it appears as a fea-

ture of the last stage of atrophy from digestive demagements.

Morried Anatomy. The lesion consists in a curroundy condensed state of the skin. This tissue is thinned as if from compression of the several layers. The rate Malpighii and corium have sensibly last thickness, and the code of the former layer can hardly be detected, so intimately are they analgamated into a compact mass. In the adipose layer the fat-lobules are atrophied; their globules are wested; and the connective-tissue bands are more numerous and thicker then in the normal sints. According to Underwood, the infumtion of the cellular tissue may reach the elecation of the muscles and even affect their fibres. There is never any subcutaneous adens in the true disease. The blood-results, especially those of the payiller, are so narrowed that their luness is obliterated. These pathological changes form a very distinct condition-different on the one hand from sedoms of the new-horn, and on the other from selecoderns of older children and adults. They are the consequence, according to Parost, of desecution of the tegamentary tissues owing to the draining away of fluid by the copious watery discharges from the bowels. There must, however, but

some other cause for the pathological change, for in this country it is common enough to find young infants reduced by had feeding and profuse watery distribute to a state of extreme emaciation; but scierems is also in

so rure that when discovered it is regarded as a clinical curiosity.

A form of sclerena called offsess scleress is sometimes not with. This is different pathologically from the preceding. It is due to a solidification during life of the subcutaneous fat. According to Dr. Langer the melting point of infant's fat is 113° Fahn, or a higher point than the temperature of the body; while adult fat becomes perfectly fluid at a temperature of 98.8° Fahr. Hence, in the healthy child during life a large propertion of its fat is not quite fluid but merely soft. If, from any reason, such as colleges, or the rapid withlinswal of heat which conclines occurs in young infants as a consequence of depressing lilness, the temperature of the body falls to 89.6°, this degree of cooling, according to Dr. Langer, is sufficient completely to solidify all the fat in the purmiculus adiposis.

Symptons.—The more special symptoms of scheroms are preceded by great impairment of nutrition and expel wasting. The induration begins to be noticed at the end of the first week of life, or on the ninth or tenth day, or in some cases in the course of the second month. According to some written it is especially in infants born fairly bealthy and robust, and whose nutrition has become rapidly impaired that the cutmesons symptom

is most likely to occur.

The induration generally begins in the lower limbs and spreads thence to the loins, the back, the chest, and eventually to the whole bady, face included. In some cases the face is said to be attacked early, and the induration to speed from this part to the body. The affected skin, completely being its natural softness and supplement becomes hard and unyielding, and pressure with the fager meets a resistance like that of home or lambered leather. The folds and lims of the skin disappear, and partly from rigidity, partly from its close connection with the underlying tissues.

it can no longer be pinched up between the finger and thumb.

When the whole body is thus affected the induration prevents any bending of the joints, so that the limbs are stretched stiffly out, and it is even said that the body may be supported in a horizontal position in the air by a band placed under the lans. The rigidity of the face, especially of the lips and checks makes suching impossible, although the induration of this part is usually less advanced than that of other regions of the body. But for this, and for the little feedle respiratory movement of the abdences and chest, the infant might be thought to be dead. Indeed, the tightle-compressed lips, the closed eyes, the mask-like face, the immobility of the frame, and the peculiar coldiness of the surface, resemble death more poorly than life.

The lowness of the temperature is one of the striking features of this condition. The diminution of heat of the skin gives a marked sensation of coldness to the hand, and even in the rectum the temperature may fall far below the normal level. The tody is not only cold, but seems interpable of being warmed; and even the occurrence of passmonia has no appreciable effect in mixing the temperature. The pulse and respiration fall in frequency. The former may be as low as sixty in the minute, the latter fourteen. The respiratory movements are lumpered and feeble, and the

ery is weak and almost mandable.

The course of the disease is very expid. The industrian proceeds apuce. By the third day, according to Underwood, the skin has become intimately adherent to the tissues beneath. By the fourth the industrian

has become general over the body. The child nearly dies on the seventh day or soon afterwards,

OCCUPANTA OF NEW-BORN CHILDREN.

(Edems of new-born children is also a very sure disease in this country. The subcutaneous tissue is infiltrated with yallowish seresity which permentes between the adipose lobules, but never passes between the muscles or sinks below the level of the subcutaneous tissue. The fat is converted into a yellowish brown mass. In some cases there is congenital atelectasis.

Surptions.-The disease begins, according to Valleix, before the third day of life, and the indexts affected are almost always posmulurely born or feeble. At first the child is noticed to be drowsy, and its skin is then found to be hard and very cold to the touch. The asdessa is first noticed in the feet and thence spreads upwards to the thighs. The temds are next attacked, and later the orders appears in the genitals and the lack. There are, however, exceptions to this order. Valleix states that he has known the ordern to appear first in the cheek; and sometimes the hunds begin to swell directly after the feet have been attacked. The swelling is usually greater on one sale than on the other, and tends always to sink to that on which the infant is lying. The affected parts pit with difficulty on pressure, but are swollen, and feel doughy and hard. The skin at first has a purple colour, especially at the extremities, and before death may have a jaunified less. It does not become adherent to the parts beneath as in the case of selection, and there is not the same stiffness of the joints. The temperature is low and may fall to 86". It is little mixed by the external application of warmth to the body. The shild lies in a decover apathetic state, and sourcely attempts to cry. The pulse is small and very feeble; the breathing slow and interrupted; convulsions may come on, and the prostration may be increased by a watery diarrhou. Death may be hastened by intercurrent attacks of bronchitis, pneumonia, collapse of the long, gastrie or intestinal enture, etc." In some of the cases purenchymatous pephritis and albuninuria have been observed.

Disposite.—The two diseases, selected and redema of the new-born, are very dissimilar, although they appear to be produced by much the same conditions, and certain symptoms are common to both. In each case we find a lowering of the temperature, a fall in the pulse and respiration, and a rigidity of the surface of the body. In each case the weakness is profound; and the infant lies motionless, refuses to suck, and more nearly resembles a dead shild than a lowing one. There are, however, important differences in the two diseases. In selection it; the joints are extended and stiff, and the whole body is rigid as if petrified or fracen. The firmness and rigidity increase day by day, and death occurs at the end of the first

or the beginning of the second week.

In orders the parts effected are firm and swollen, but can be made to pit on deep pressure. The swelling is partial and is most marked on the side upon which the child is lying. The skin can be moved over the parts beneath it; and the stiffness of the joints is but little pronounced, never prevaling, as in solvenue, to a sufficient degree to resist the force of gravity. The disease, also, is td longer duration than is the case with selection, and although very dangerous on account of the menhauss of the shill, is not invariably fatal. The two diseases may exist together, or

scherens may encosed to ordenn, as in a case reported by Parrot.

Treetscot.—In cases of true scierum little can be done. On account
of the impossibility of sucking, the infant should be fed with white wine
wher by means of the syrings feeder (see page 15). By this means a
sufficient quantity of food can be introduced at intervals into the back of
the threat when it is readily swallowed. In order to maintain the summth
of the body, the child should be supposed in cotton-wood, and should be
arreconded with hot water-bettles.

In the calence of new-born infants the child, if he cannot suck, may be fed with the syringe as directed above. He should take white wine whey, milk and barley-water, and other varieties of food suitable to this period of life (see page 603). Warmth must be maintained as in the former case, and gentle frictions to the surface of the body are of service in helping to

disperse the colema.



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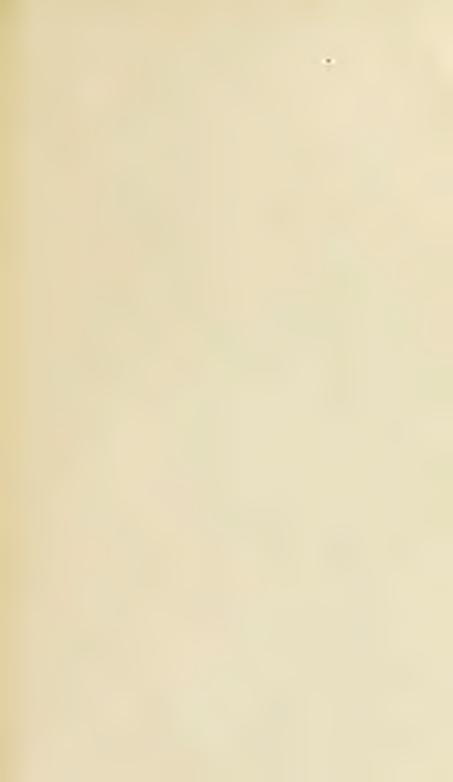
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